PRC Environmental Management, Inc.
644 Linn Street
Suite 719
Cincinnati, Ohio 45203
513-241-0149
Fax 513-241-0354

EXPANDED SITE INSPECTION REPORT

SYSTECH LIQUID TREATMENT CORPORATION
BAXTER ROAD AND STATE ROUTE 73
FRANKLIN, WARREN COUNTY, OHIO 45005

U.S. EPA ID NO.: OHD 030 935 852

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Site Assessment Section
77 West Jackson Boulevard
Chicago, IL 60604

U.S. EPA Work Assignment No.	:	36-5JZZ
U.S. EPA Region	:	5
Date Prepared	:	July 7, 1994
Contract No.	:	68-W8-0084
PRC Project No.	:	030-003625
Prepared by	:	PRC Environmental Management, Inc. (Guy D. Montfort)
PRC Project Manager	:	Gabriel Rood
Telephone No.	:	(513) 241-0149
U.S. EPA Work Assignment Manager	:	Jeanne Griffin
Telephone No.	:	(312) 886-3007

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1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), was tasked by the U.S. Environmental Protection Agency (U.S. EPA) to conduct expanded site inspections (ESI) in Region 5 under Contract No. 68-W8-0084, Work Assignment No. 36-5JZZ.

The primary objective of an ESI is to determine whether a site has the potential to be placed on the National Priorities List (NPL). The NPL identifies sites where releases or threatened releases of hazardous substances pose a serious enough risk to public health or the environment to warrant further investigation and possible remediation under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), and the Superfund Amendments and Reauthorization Act of 1986 (SARA).

Information gathered during the ESI is used to generate a preliminary Hazard Ranking System (HRS) score. The HRS is the primary criterion U.S. EPA uses to determine whether a site should be placed on the NPL (Federal Register 1990). ESIs are generally conducted at sites where additional environmental sampling or monitoring well installation is necessary to fulfill HRS documentation requirements, and to address site issues not adequately resolved in previous investigations.

Specifically, the objectives of the ESI are as follows:

- To investigate and document critical hypotheses or assumptions not completely tested during previous investigations
- To collect samples to attribute hazardous substances to site operations
- To collect samples to establish representative background levels
- To collect any other missing HRS data
- To document current site conditions
- To assess the need for emergency response actions

After the ESI report is finalized, U.S. EPA, in consultation with state authorities, will determine whether the site should undergo further investigation or should be designated "no further remedial

action planned (NFRAP). The NFRAP designation means that no additional investigations will be conducted based on information available at the time of the NFRAP designation. However, if new site information is brought to U.S. EPA's attention, the site may be reevaluated. For sites warranting further investigation under CERCLA and SARA authority, an HRS scoring package will be prepared using data collected during the ESI and previous investigations. Preparation of an HRS package may result in NPL listing of the site.

This report documents the results of an ESI conducted at the Systech Liquid Treatment Corporation (Systech) site in Franklin, Warren County, Ohio. PRC gathered and reviewed information from the Ohio Environmental Protection Agency (OEPA) and from U.S. EPA Region 5 CERCLA files. PRC performed a reconnaissance inspection of the Systech site on April 22, 1993. The inspection included an interview with the site representative and a walk-through inspection of the site. PRC subsequently prepared an ESI site-specific implementation plan (SSIP) and submitted the plan to U.S. EPA for approval. U.S. EPA approved the SSIP on June 18, 1993. PRC collected 11 groundwater, 2 sediment, and 5 soil samples at the Systech site during the ESI, which was conducted on June 21 and June 25, 1993.

2.0 SITE BACKGROUND

This section describes the Systech site, and summarizes site history, waste handling practices, regulatory and release history, and previous investigations.

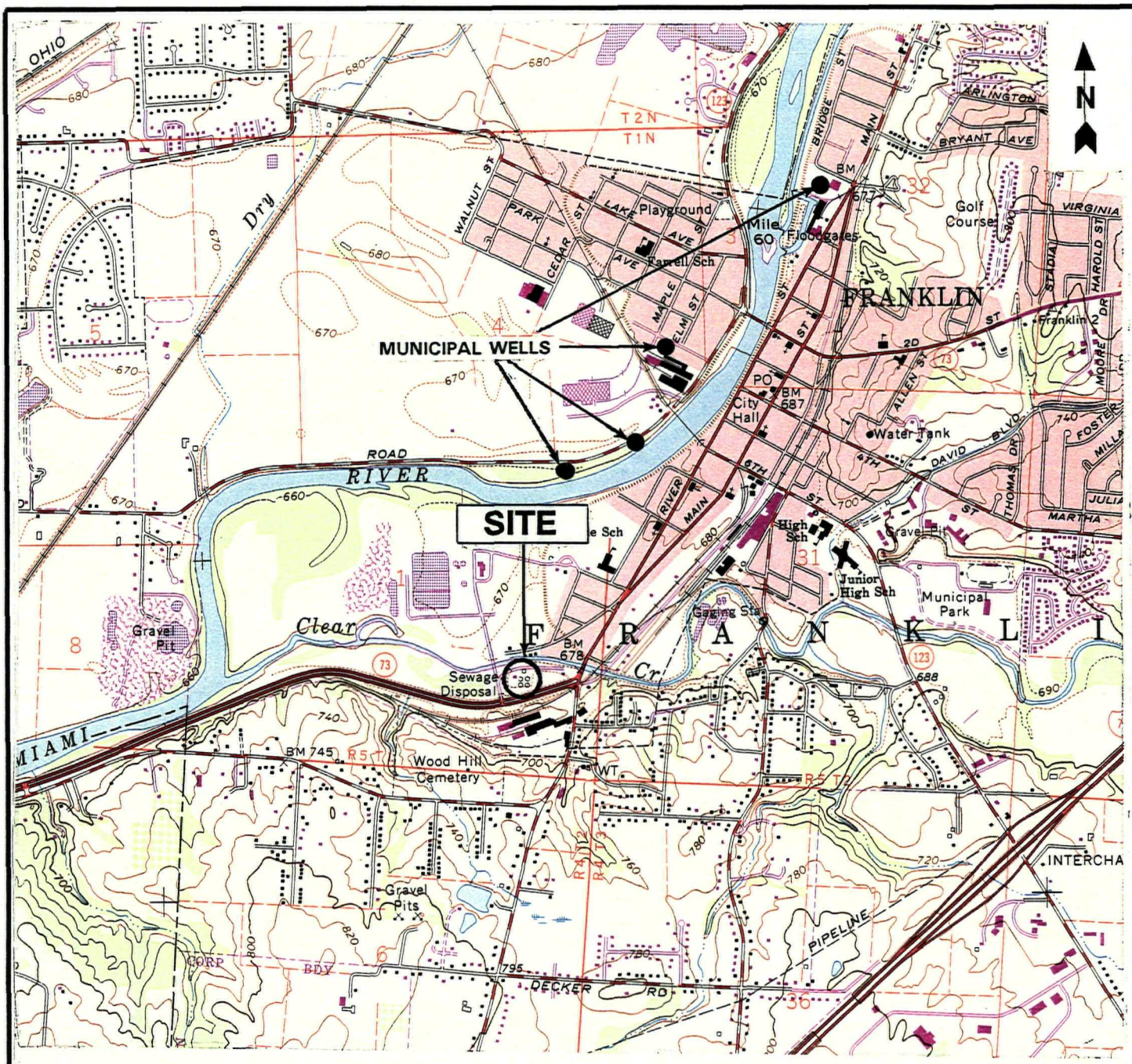
2.1 SITE DESCRIPTION

The Systech site is an inactive waste treatment facility located in Franklin, Warren County, Ohio (see Figure 1). The site is located in the former City of Franklin wastewater treatment plant, on a 2.3-acre property currently owned by the Miami Conservancy District (MCD). Downtown Franklin is about 1 mile northeast of the site. The Great Miami River is about 2,500 feet north of the site (U.S. Geological Survey [USGS] 1965a).

The site is surrounded by a chain-link fence that is topped with barbed wire. Locked gates are located at several locations around the site perimeter (PRC 1993b). Clear Creek is about 100 feet north of the northern site fence. An overgrown gravel drive and wooded area are between the site and Clear Creek. The gravel drive also extends around the eastern side of the site; a wooded area is beyond the gravel drive. The site is bordered by Ohio State Route 73 on the south and Baxter Road on the west (see Figure 2).

The population of Franklin is about 11,000; about 48,753 people live within a four-mile radius of the site (U.S. Department of Commerce 1991; Frost Associates 1994). Land use in the surrounding area is mixed residential, industrial, commercial, and agricultural. MCD's current wastewater treatment plant for the City of Franklin occupies much of the area north of the site, between Clear Creek and the Great Miami River. Some of the MCD property is used for drying and experimental spray application of treated sewage sludge. Residential housing and a cornfield are northeast of the site, north of Clear Creek. The nearest off-site residences are located directly across Clear Creek from the eastern part of the site. IKO Productions, a roofing manufacturer, is located south of the site, in an industrial area south of State Route 73 (PRC 1993b).

The average daily temperature in Franklin is 62°. The average total annual precipitation is 37 inches; net precipitation is in the 15-inch to 30-inch range (U.S. Department of Agriculture [USDA] 1973;



SCALE 1:24000

1 0 1 MILE

1/2

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

SCALE: 1" = 2,000'

QUADRANGLE LOCATION

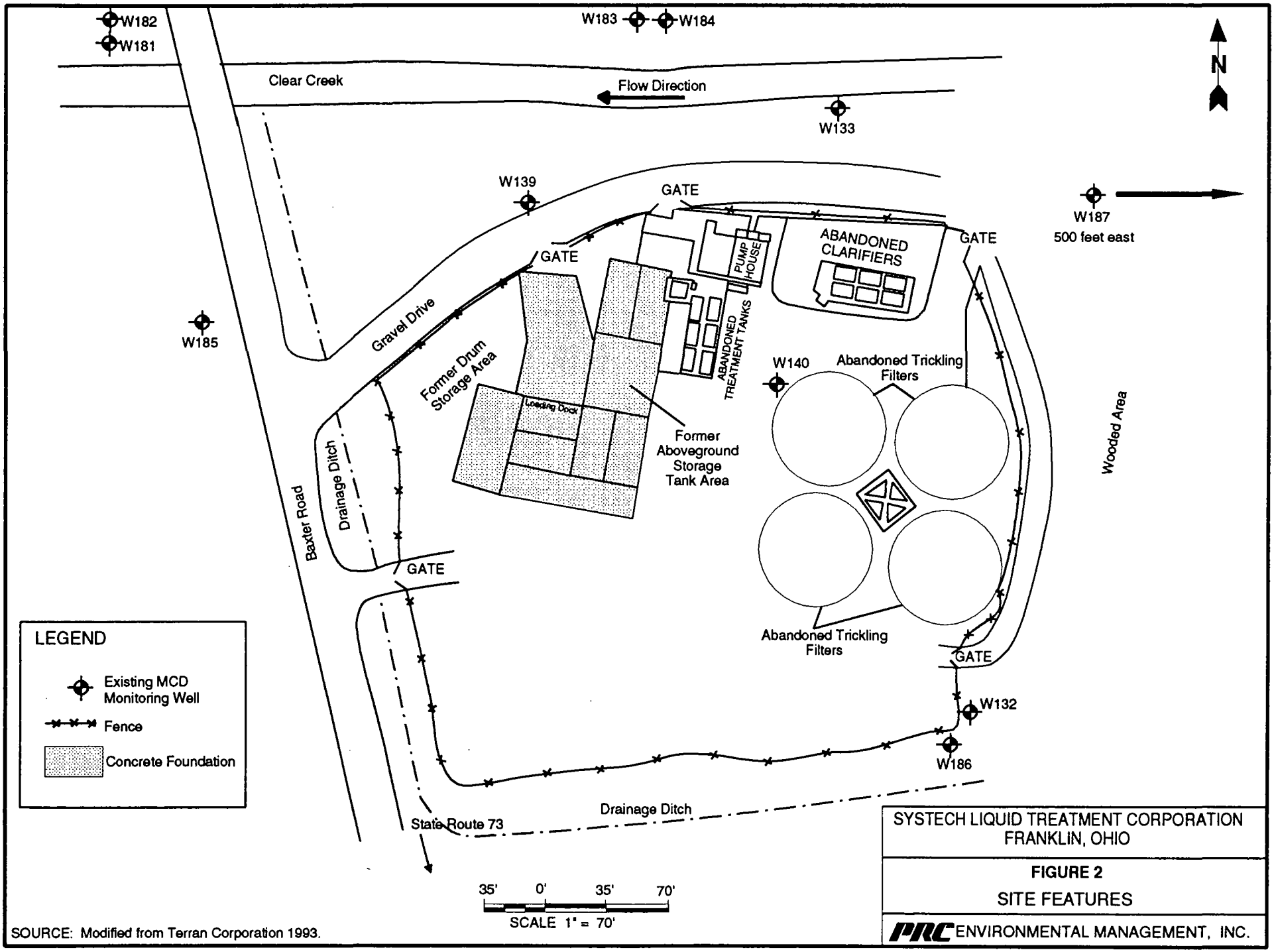
SOURCE: Modified from USGS 1965a.

SYSTECH LIQUID TREATMENT CORPORATION
FRANKLIN, OHIO

FIGURE 1

SITE LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.


W182
W181
W183
W184
Clear Creek
Flow Direction
W133
N
W139
GATE
W187
500 feet east
GATE
GATE
PUMP HOUSE
ABANDONED CLARIFIERS
W185
Gravel Drive
ABANDONED TREATMENT TANKS
W140
Abandoned Trickling Filters
Former Drum Storage Area
Loading Dock
Former Aboveground Storage Tank Area
Wooded Area
Drainage Ditch
Baxter Road
GATE
Abandoned Trickling Filters
GATE
W132
W186
Drainage Ditch
State Route 73
LEGEND
Existing MCD Monitoring Well
Fence
Concrete Foundation
35' 0' 35' 70'
SCALE 1" = 70'
SOURCE: Modified from Terran Corporation 1993.
SYSTECH LIQUID TREATMENT CORPORATION
FRANKLIN, OHIO
FIGURE 2
SITE FEATURES
PRC ENVIRONMENTAL MANAGEMENT, INC.

Federal Register 1990). The maximum 2-year, 24-hour rainfall is about 2.75 inches (National Oceanic and Atmospheric Administration [NOAA] 1992).

Subsurface materials in the site vicinity consist of unconsolidated glacial drift overlying shale bedrock. The site is located on the southeast margin of the Great Miami River buried valley aquifer. This buried valley contains thick sand and gravel deposits that form a major aquifer system in southwest Ohio (Ohio Department of Natural Resources [ODNR] 1960). About 26,864 people use drinking water obtained from this aquifer at locations within a 4-mile radius of the Systech site (ODNR 1954-1983; City of Franklin 1992; PRC 1992c; 1992d; 1993a; 1994a; 1994b; Frost Associates 1994). Some of these people are served by groundwater-based municipal systems, while others use private wells. The nearest municipal wells are the City of Franklin wells, which serve a population of about 11,500 (PRC 1992a; 1993a). The wells are located along the Great Miami River. Three of these wells are located between 0.5 and 1 mile away from the Systech site; the fourth well is about 1.5 miles away (City of Franklin 1992; PRC 1992a; 1993b). The nearest private well is reportedly located about 1 mile west of the site, west of the Great Miami River (Ecology & Environment [E&E] 1987; Geraghty and Miller Engineers, Inc. [G&M] 1989).

Surface runoff from the site flows into Clear Creek, either directly or by way of drainage ditches located along the southern and western site boundaries. Clear Creek converges with the Great Miami River about 0.8 mile downstream (west) from the site (USGS 1965a). Surface water in the area is not used as a source of drinking water but is used for fishing (PRC 1992b). Runoff also tends to pond in several subgrade structures at the site (see Section 3.1) that were originally part of the treatment plant operations (PRC 1993b).

2.2 SITE OPERATIONS

From the 1930s to 1972, the City of Franklin operated a municipal wastewater treatment plant on the site property. When the new wastewater treatment plant (north of the site) was constructed in 1972, the city deeded the original plant and the new facility to the MCD (E&E 1987; PRC 1993b). MCD is a regional government agency that performs a variety of functions related to water resource management and flood control in the Great Miami River Basin (PRC 1993b).

MCD leased the old treatment plant property to Systems Technology Corporation (STC). Although STC used the property for waste treatment opertions, the site is known as the Systech site due to subsequent changes in corporate structure and ownership. In 1979 STC changed its name to Systech Liquid Treatment Corporation (Systech) and became a subsidiary of a parent company named Systech Corporation. In 1982 the Systech subsidiary was purchased by Tricil, Inc., and in 1983 the corporation's name was changed to Tricil Environmental Services, Inc. However, Systech Corporation retained responsibility for the Franklin, Ohio facility (E&E 1987; PRC 1993b).

STC performed two basic operations at the site: liquid waste treatment and solvent recovery. From 1974 to 1978 STC received liquid industrial wastes including cyanide-contaminated wastes, plating wastes, acids and bases, phenol-contaminated water, oily wastes, and some food wastes. These wastes were stored in several subgrade structures (trickling filters, clarifiers, and treatment chambers) remaining on site from the former wastewater treatment plant, as well as in drums and several aboveground storage tanks. Compatible wastes were combined, neutralized, and pumped to MCD's new wastewater treatment plant for final treatment and discharge. According to available information, no wastes were disposed of on site (OEPA 1986; E&E 1987: PRC 1993b).

STC operated a solvent recovery process from 1976 to 1978 (OEPA 1986; E&E 1987; PRC 1993b). Available information indicates that a total of 694,000 gallons of waste solvents was treated on site (E&E 1987). The site applied for a permit to operate as a preincineration processing facility in 1975 (PRC 1992e). For a 3- to 5-month period (year unknown), solvents from STC were incinerated at the new wastewater treatment plant 1,500 feet north of the site (E&E 1987). As with the other liquid wastes handled on site, available information does not indicate that STC disposed of any solvent-related materials on site; however, spills and day-to-day handling may have resulted in some liquid wastes and solvent entering site soils.

Chemical spills were reported at the site as early as 1975 (Franklin Chronicle 1986). On August 23, 1975, two employees died while cleaning a tank containing cyanide-laden sludges (E&E 1987). In 1977 a reported spill of organic chemicals resulted in an investigation by MCD of potential groundwater contamination (OEPA 1986; E&E 1987).

In August 1978 an odor problem developed at the site. The problem was reportedly related to spent paint, thinner, solvents, and sludges that were drained from two 12,000-gallon storage tanks into diked areas surrounding the tanks (Franklin Chronicle 1986; OEPA 1992; PRC 1992e). However, during the ESI reconnaissance in 1993, Systech representatives indicated that the odor was caused by the solvent recovery process (PRC 1993b). The odor problem was reportedly so severe that residents 2 miles from the site complained of odors (OEPA 1986). OEPA and the Southwest Ohio Air Pollution Control Office inspected the site on August 18 and 22, 1978. However, no air sampling was performed to confirm the source or nature of the odors, and apparently STC held no air permits for the on-site operations. Therefore, the chemical compounds responsible for the odors and the concentrations potentially released to the air are unknown.

The site was closed on August 18, 1978 (Franklin Chronicle 1986). Following closure all STC equipment, buildings, and aboveground tanks were removed from the site. However, the original wastewater treatment plant structures (pump house, clarifiers, trickling filters, treatment tanks, and concrete foundations) were not removed. According to Systech representatives, buried underground storage tanks were never present at the site (PRC 1993b).

2.3 PREVIOUS INVESTIGATIONS

Due to concerns regarding potential groundwater contamination, MCD installed three groundwater monitoring wells at the site in November 1977. Groundwater samples collected from the wells in November 1977 reportedly contained the following volatile organic compounds (VOC): methanol, at a concentration of 23.3 milligrams per liter (mg/L); toluene (5.86 mg/L); methyl ethyl ketone (6.1 mg/L); xylenes (140 micrograms per liter [μg/L]); isopropanol (14.9 mg/L); and ethyl acetate (19.5 mg/L) (OEPA 1986).

MCD installed a fourth monitoring well at the site in 1979. Systech subsequently used two of the monitoring wells (W139 and W140) to extract contaminated groundwater (OEPA 1986). Systech removed about 21 million gallons of groundwater during the remediation efforts. The water was pumped to the MCD plant for treatment. In 1979 OEPA decided that Systech could cease groundwater extraction because it would have little additional benefit (E&E 1987; PRC 1993b).

In 1986 OEPA found that the laboratory results on which its 1979 decision to stop remediation had been based were no longer acceptable under 1986 standards (OEPA 1992). The City of Franklin subsequently contracted Soil and Material Engineers (SME) to determine if groundwater at the site was still contaminated and to identify the contaminant source. As part of its investigation, SME sampled the on-site monitoring wells. Table 1 lists the concentrations of contaminants detected in the groundwater samples (OEPA 1986).

TABLE 1

RESULTS OF 1986 SAMPLING EVENT

Contaminant	Monitoring Well No.	Concentration (μg/L)
Chromium	W132	128
	W139	52
Toluene	W139	16,000
Ethylbenzene	W139	7,800
Xylene	W139	2,510
Polychlorinated biphenyls(PCB) as Aroclor 1248	W132	69

In 1986, OEPA prepared a preliminary assessment (PA) of the Systech site recommending a medium priority for further investigation (OEPA 1986).

In May 1987, the U.S. EPA Field Investigation Team (FIT) conducted a screening site inspection (SSI) at the Systech site. The SSI included collection of seven groundwater samples, one residential well sample, and four soil samples. The results of the groundwater analyses indicated that groundwater at the Systech site contained the VOCs 1,1,1-trichloroethane (TCA) (at a reported concentration of 15 μg/L), vinyl chloride (29 μg/L), ethylbenzene (2,700 μg/L), and xylenes (9,400 μg/L), and the Target Analyte List (TAL) analyte arsenic (66 μg/L). The results of the soil sample analyses indicated that site soils contained significant concentrations of the VOCs 1,1,1-TCA, trichloroethene (TCE), tetrachloroethene (PCE), and the TAL analyte chromium (E&E 1987). The presence of solvents (specifically 1,1,1-TCA) in groundwater and soil samples indicated that the

groundwater contamination was related to spills occurring when waste was handled on site at Systech. However, 1,1,1-TCA was the only groundwater contaminant that was also detected in the soil samples (E&E 1987).

From 1990 to 1992, Terran Corporation (Terran) performed a hydrogeologic investigation at the Systech site, on behalf of Systech Corporation. Terran installed seven additional groundwater monitoring wells and performed quarterly groundwater sampling, as well as surface water sampling and a soil gas survey. During the investigation, the VOCs benzene, cis-1,2-dichloroethene, ethylbenzene, toluene, and vinyl chloride were detected in W139. Chromium and arsenic were also detected in several of the on-site monitoring wells (Terran 1993).

In 1989 G&M, on behalf of Systech Corporation, evaluated the Systech site for its potential to be placed on the NPL. G&M estimated a potential HRS score for the site, based on the assumption that several municipal wells in Middletown, Ohio were located within 4 miles of the Systech site. However, information gathered by PRC indicates that all of the Middletown wells are more than 4 miles away from the Systech site (City of Middletown 1993).

3.0 ESI ACTIVITIES

This section presents field observations and sampling procedures at the Systech site. Individual subsections address the reconnaissance and sampling inspections. Rationales for specific ESI activities are also provided. The ESI was conducted in accordance with the U.S. EPA-approved SSIP, dated June 16, 1993, and the U.S. EPA-approved generic quality assurance project plan (QAPjP), dated October 7, 1991. The U.S. EPA Potential Hazardous Waste Site Inspection Report (Form 2070-13) for the Systech site is provided in Appendix A. Photographs taken by PRC during the inspection activities are included in Appendix B.

3.1 SITE RECONNAISSANCE

PRC performed a reconnaissance of the Systech site on April 22, 1993. The site reconnaissance consisted of an interview with site representatives and a visual inspection of the site. The purpose of the inspection was to determine appropriate health and safety requirements for on-site sampling activities, evaluate the need for immediate removal actions, choose sampling locations, and locate and evaluate nearby targets. PRC was accompanied on the reconnaissance by two representatives of OEPA's Southwest District Office. Observations made during the inspection are presented herein. All information is based on PRC's observations unless otherwise referenced.

Upon arrival at the Systech site, PRC met with Mr. Stephen Zimmer of Systech Environmental Corporation (a subsidiary of Systech Corporation) and Mr. Paul Plummer of MCD. During the inspection Mr. Zimmer and Mr. Plummer explained the history and operations of the Systech site. Mr. Zimmer also discussed the general nature of the wastes handled at the site and waste treatment methods.

The site is surrounded by a chain-link fence that has locked gates and is topped with barbed wire (Photograph No. 1). The pump house is the only remaining building on site (Photograph No. 2). Other remaining structures include subgrade concrete pits and chambers where the trickling filters, clarifiers, and treatment tanks were formerly located (Photograph No. 3). These structures were all part of the former City of Franklin wastewater treatment plant. STC used these structures to store liquid wastes and sludges during site operations. Several concrete slabs (remnants of foundations)

a concrete loading dock from the STC solvent recovery operation also remain on site (Photograph No. 4). The outlines of several metal aboveground tanks used by STC are visible on the slabs; however, no aboveground tanks remain on site (Photograph No. 5). The trickling filters, clarifiers, treatment tanks, and loading dock areas were empty except for some rainwater that had ponded in low areas, and a few empty 55-gallon drums. About 20 55-gallon drums, apparently used to contain purge water during 1991 and 1992 sampling events, remain in the area near the former loading dock (Photograph No. 6).

Most of the site is open with few trees, except along the northern and eastern boundaries, and around the pump house. A partially-overgrown gravel drive and drum storage area are present in the western part of the site. Most of the site is covered with grass; some heavy brush is present in the eastern parts of the site. Vegetation did not appear to be abnormally stressed.

Most of the site appears to be well drained except for the subgrade structures. Most site surface runoff flows into perimeter ditches on the south and west which then flow into Clear Creek (Photograph Nos. 7 and 8). At the southwest corner of the site, the south ditch flows into the west ditch, which then continues northward and flows into Clear Creek at the northwest corner of the site (Photograph No. 9). Runoff from areas along the northern site boundary probably flows directly into Clear Creek.

One groundwater monitoring well (W-140) is located on site, within the fenced area. An additional nine groundwater monitoring wells are located at or near the site perimeter (outside of the fence), on both sides of Clear Creek. The four wells installed during the late 1970s (W132, W133, W139, and W140) are constructed of polyvinyl chloride (PVC). The wells installed during the Terran investigation (W181, W182, W183, W184, W185, and W186) are constructed of stainless steel. Background monitoring well W187, which is located about 500 feet east of the site, next to a residence on the north bank of Clear Creek, is also constructed of stainless steel.

The City of Franklin municipal wells are located north of the site along the Great Miami River. (Appendix C presents the locations of all identified municipal wells within a 4-mile radius of the Systech site). Several industrial supply wells are also located in the area.

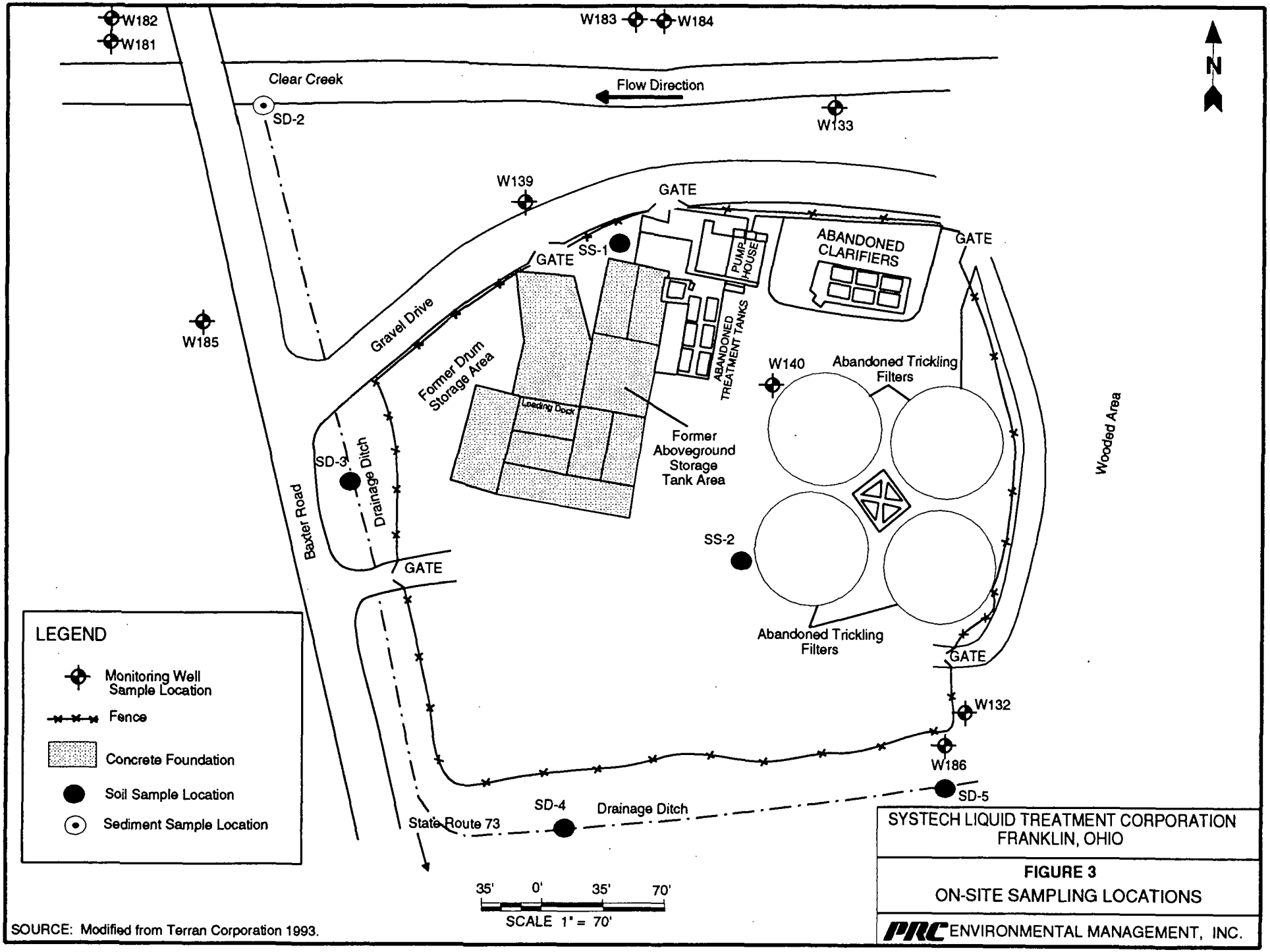
3.2 SAMPLING LOCATIONS AND PROCEDURES

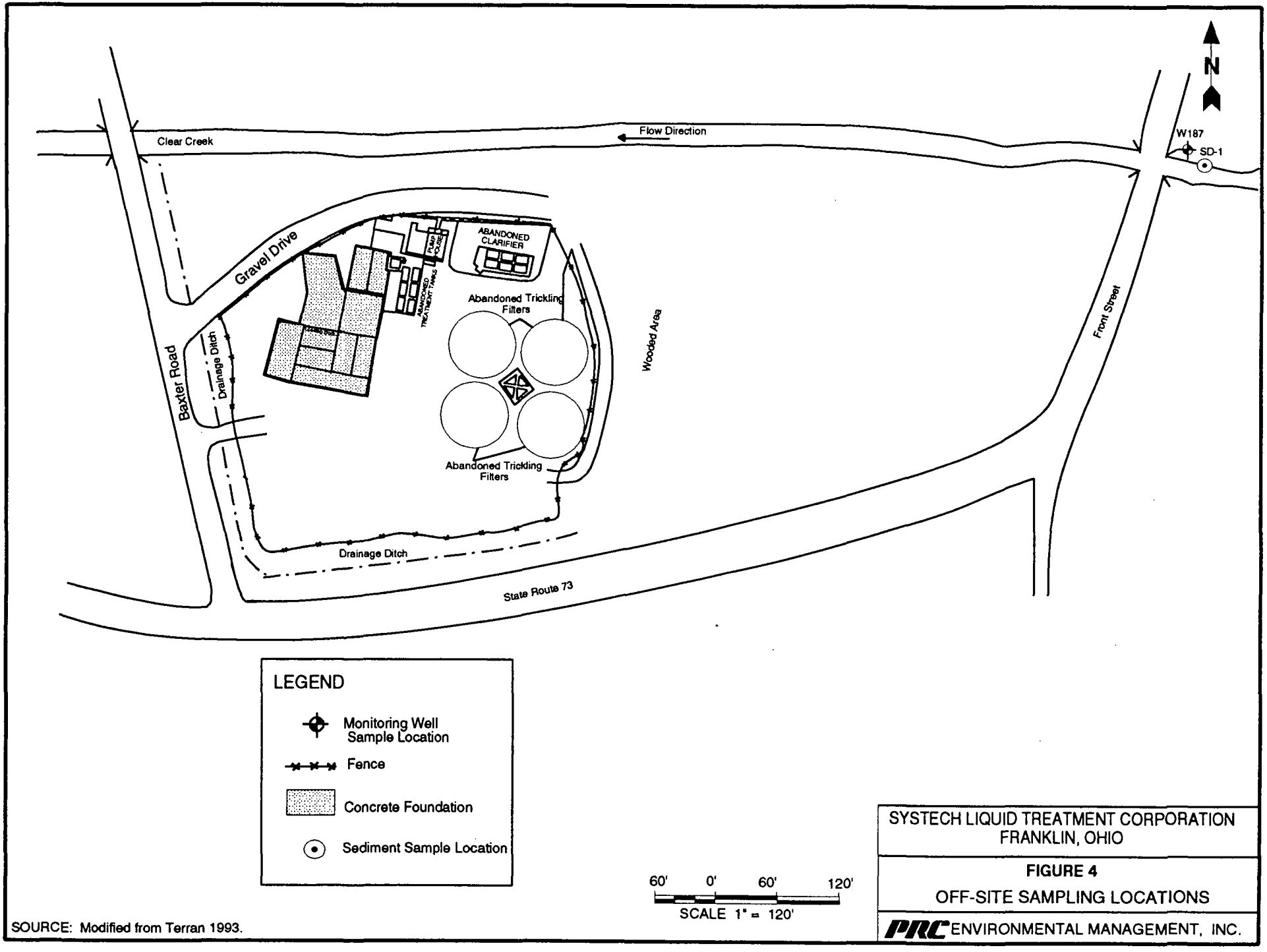
PRC collected 11 groundwater samples, 2 sediment samples, 5 soil samples, and related quality assurance/quality control (QA/QC) samples on June 21 and June 25, 1993. The sampling locations are presented in Figures 3 and 4, and are summarized in Table 2. Sampling locations and collection procedures were in accordance with the U.S. EPA-approved SSIP, generic QAPjP, and applicable portions of PRC's standard operating procedures (SOP). All samples were split with personnel from Terran (Roger McReady, Robert Croydon, and Robert Weber), who represented Systech Corporation. Mr. Plummer of MCD was also present during some of the sampling activities.

3.2.1 Monitoring Well (Groundwater) Samples

PRC collected groundwater samples from 11 monitoring wells at the Systech site. PRC collected samples from monitoring wells W132, W133, W181, W182, W183, W184, W185, W186, and background well W187 on June 21, 1993 (Photograph Nos. 10 through 22). Wells W139 and W140 have permanent, dedicated submersible pumps installed in the casings. MCD was unable to provide the equipment and personnel needed to operate the pumping systems on June 21; because of this, PRC sampled wells W139 and W140 on June 25 (Photograph Nos. 23 through 26). The purpose of collecting the groundwater samples was to confirm the results of previous sampling events, which had indicated that the Systech site had released contaminants to local groundwater.

Prior to sampling, PRC measured the depth to water in each well using an electronic water level probe. The water level data are presented in Table 3. PRC purged all wells prior to sampling. The pH, specific conductivity, and temperature of the purged water was monitored during the purging process. Purging continued until these parameters had stabilized and at least three times the volume of standing water in the well had been purged. PRC then collected groundwater samples from each well. Teflon bailers were used to purge and collect groundwater samples at all of the wells except W139 and W140. PRC purged wells W-139 and W-140 with the dedicated submersible pumps. Because the pumping apparatus rendered the well interiors inaccessible to bailers, PRC collected the groundwater samples through taps connected to access portals on the pump discharge pipes. The pump flow rate was reduced to the lowest possible rate that provided smooth, nonturbulent flow prior to sampling.


W182
W181
W183
W184
Clear Creek
Flow Direction
SD-2
W133
W139
GATE
SS-1
GATE
PUMP HOUSE
ABANDONED CLARIFIERS
GATE
W185
Gravel Drive
ABANDONED TREATMENT TANKS
Former Drum Storage Area
Loading Dock
W140
Abandoned Trickling Filters
Former Aboveground Storage Tank Area
Wooded Area
SD-3
Drainage Ditch
Baxter Road
SS-2
GATE
Abandoned Trickling Filters
GATE
W132
W186
SD-5
SD-4
Drainage Ditch
State Route 73
N
LEGEND
Monitoring Well Sample Location
Fence
Concrete Foundation
Soil Sample Location
Sediment Sample Location
35' 0' 35' 70'
SCALE 1" = 70'
SOURCE: Modified from Terran Corporation 1993.
SYSTECH LIQUID TREATMENT CORPORATION
FRANKLIN, OHIO
FIGURE 3
ON-SITE SAMPLING LOCATIONS
PRC ENVIRONMENTAL MANAGEMENT, INC.



SOURCE: Modified from Terran 1993.

SYSTECH LIQUID TREATMENT CORPORATION
FRANKLIN, OHIO

FIGURE 4

OFF-SITE SAMPLING LOCATIONS

PRC ENVIRONMENTAL MANAGEMENT, INC.

TABLE 2

SAMPLING SUMMARY

Sample Number	Location/*Deviation*	Justification
Monitoring Well (Groundwater)		
W132	Monitoring well W132, located in the southeast part of the site.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W133	Monitoring well W133, located in the north-central part of the site.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W139	Monitoring well W139, located in the northwest part of the site.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W140	Monitoring well W140, located in the central part of the site.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W140D	Monitoring well W140, located in the central part of the site.	This sample was a field duplicate of sample W140.
W181	Monitoring well W181, located northwest of the site, north of Clear Creek.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W182	Monitoring well W182 located northwest of the site, north of Clear Creek.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W183	Monitoring well W183, located north of the site, north of Clear Creek.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.

TABLE 2 (continued)

SAMPLING SUMMARY

Sample Number	Location/*Deviation*	Justification
Monitoring Well (continued)		
W183D	Monitoring well W183, located north of the site, north of Clear Creek.	This sample was a field duplicate of sample W183.
W184	Monitoring well W184, located north of the site, north of Clear Creek.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W185	Monitoring well W185, located across Baxter Road, west of the site.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W186	Monitoring well W186, located in the southeast part of the site.	This sample was collected to confirm that contaminants have been released to groundwater and to characterize contaminants.
W187	Monitoring well W187, located about 500 feet east of the site, north of Clear Creek.	This sample was collected to evaluate background conditions in local groundwater, for comparison with the other groundwater samples.
EB-1	Systech site	This was a field rinsate blank sample for June 21, 1993.
EB-2	Systech site	This was a field rinsate blank sample for June 25, 1993.
TB-1	N/A	This was a trip blank sample for VOC sample fractions collected on June 21, 1993.
TB-2	N/A	This was a trip blank sample for VOC sample fractions collected on June 25, 1993.

TABLE 2 (continued)

SAMPLING SUMMARY

Sample Number	Location/*Deviation*	Justification
Sediment		
SD-1	Clear Creek, about 500 feet upstream (east) from the Systech site.	This sample was collected as a background sediment sample for Clear Creek, to evaluate conditions prior to contact with site drainage.
SD-2	Confluence of the western site perimeter drainage ditch and Clear Creek, at the northwest site corner.	This sample was collected to determine if the Systech site has released contaminants to the Clear Creek/Great Miami River watershed.
Soil		
SS-1	Unpaved area north of the loading dock.	This sample was collected to characterize contamination present in site soils.
SS-2	Unpaved area on the southwest side of the abandoned trickling filters.	This sample was collected to characterize contamination present in site soils.
SD-3	Drainage ditch along the western boundary of the site. *The matrix of sample SD-3 was described as sediment in the SSIP, but was redesignated soil due to the absence of surface water at the sampling location.*	This sample was collected to determine if contaminants are present in soils along the drainage pathway (ditch) between the site and Clear Creek.
SD-4	Drainage ditch along the southern boundary of the site. *The matrix of sample SD-4 was described as sediment in the SSIP, but was redesignated soil due to the absence of surface water at the sampling location.*	This sample was collected to determine if contaminants are present in soils along the drainage pathway (ditch) between the site and Clear Creek.

TABLE 2 (continued)

SAMPLING SUMMARY

Sample Number	Location/*Deviation*	Justification
Soil (continued)		
SD-5	Drainage ditch along the southern boundary of the site, upstream of the site. *The matrix of sample SD-5 was described as sediment in the SSIP, but was redesignated soil due to the absence of surface water at the sampling location.*	This sample was collected as a background sample.

Note: N/A - Not applicable

TABLE 3

MONITORING WELL AND GROUNDWATER ELEVATIONS

Well No.	Date	Top of Casing Elevation (feet, msl)[a,b]	Elevation of Screened Interval (feet, msl)	Depth to Water (feet)	Water Elevation (feet, msl)
W132	6/21/93	676.17	652.83 - 663.13	15.62	660.55
W133	6/21/93	676.32	649.39 - 659.69	16.87	659.45
W139	6/25/93	672.65	649.75 - 659.65	14.33	658.32
W140	6/25/93	680.29	648 - 658 (approximate[c])	20.32	659.97
W181	6/21/93	668.52	623.27 - 633.77	10.55	657.97
W182	6/21/93	668.09	642.59 - 653.09	11.19	656.90
W183	6/21/93	673.30	608.05 - 613.30	15.74	657.56
W184	6/21/93	672.95	648.45 - 658.95	16.00	656.95
W185	6/21/93	668.16	642.66 - 653.16	8.09	660.07
W186	6/21/93	671.20	620.70 - 631.20	12.45	658.75
W187	6/21/93	675.06	639.56 - 650.06	14.80	660.26

Notes: [a] msl = Mean sea level datum

[b] Top of casing elevations (Terran 1988)

[c] Screen elevation estimated based on total reported well depth - no other data available

PRC transferred the VOC, seimvolatile organic compound (SVOC), pesticide, and polychlorinated biphenyl (PCB) sample fractions directly into sample containers. The sample fraction collected for metals analysis was filtered in the field using a battery-powered peristaltic pump equipped with 0.45-micron disposable filters. While purging wells W139 and W140, PRC noted gray-black discoloration and a hydrogen sulfide-like odor in the purged water. The water became less discolored as purging continued; however, at W139, the final sample retained a grayish tint and sulfide-like odor.

All bailers were decontaminated before mobilizing to the field. Several bailers also required decontamination in the field; in these cases, PRC used the same procedures used to decontaminate the bailers prior to mobilization. These procedures consisted of scrubbing the bailer inside and out with a solution of Alconox™ detergent and distilled water, followed by multiple rinses of distilled water. The bailers were then allowed to air dry and were wrapped in aluminum foil, to prevent inadvertent contamination in transit to the sample location.

Because sampling was performed on two different days, PRC prepared two sets of field QA/QC samples for the groundwater samples. A field duplicate of the sample from well W183 was collected on June 21, and a field duplicate of the sample from well W139 was collected on June 25. The purpose of these samples was to evaluate laboratory and field precision. The field duplicate samples were prepared by filling a complete extra set of sample containers at these two locations and submitting the extra set of sample containers for analysis as a distinct, separate sample.

Two field rinsate blanks (EB-1 and EB-2), one for each day of sampling, were also prepared in the field, to evaluate the effectiveness of decontamination procedures. Since all samples collected on June 21 were collected using bailers, the equipment rinsate blank for that day (EB-1) was prepared by pouring high-perfomance liquid chromatography-certified (HPLC) ultrapure water into a clean bailer, and then transferring the water to a set of sample containers. Since no bailers were used on June 25, the equipment rinsate blank for that day (EB-2) was collected by pouring the HPLC water directly into sample containers.

Two trip blank samples were prepared (VOC fractions only) to evaluate potential contamination originating during container preparation, handling, and transport. The trip blank samples accompanied each shipment of VOC sample fractions to the laboratory. Sample TB-1 accompanied

accompanied each shipment of VOC sample fractions to the laboratory. Sample TB-1 accompanied VOC fractions collected on June 21; sample TB-2 accompanied VOC fractions collected on June 25. The trip blanks were prepared by filling a set of VOC sample containers with HPLC water at the time the sample containers were initially prepared, prior to mobilization to the field. From that time forward, the trip blanks remained with the coolers in which the VOC sample fractions were stored and shipped.

3.2.2 Sediment Samples

PRC collected two sediment samples on June 21, 1993 to evaluate whether the Systech site has released contaminants to Clear Creek. The samples were collected using stainless-steel scoops. Three other samples, SD-3, SD-4, and SD-5, collected in the drainage ditches along the site boundary, were originally designated sediment samples in the SSIP. However, because the sample locations were dry at the time of sample collection, SD-3, SD-4, and SD-5 were redesignated as soil samples.

PRC collected sediment sample SD-2 to determine whether hazardous substances from the Systech site have been released to local surface waters. The sample was collected at the point where the western site drainage ditch flows into Clear Creek (Photograph Nos. 27 and 28). PRC also collected a background sediment sample, designated sample SD-1, from Clear Creek, about 500 feet upstream (east) from the Systech site (Photograph Nos. 29 and 30).

3.2.3 Soil Samples

PRC collected five soil samples at the Systech site on June 21, 1993. The purpose of the soil samples was to identify hazardous substances present on site, to identify areas of surficial soil contamination, and to determine if hazardous substances were migrating from the site toward Clear Creek by way of the perimeter drainage ditches. The number of soil samples collected was limited because most of the areas where waste treatment, storage, and handling reportedly occurred are covered by concrete or asphalt pavement. Three of the soil samples (SD-3, SD-4, and SD-5) were to have been sediment samples but were redesignated as soil samples because the sample locations were dry.

The soil samples were collected from a depth of about 0 to 6 inches below ground surface, using stainless-steel scoops. Soil sample SS-1 was collected in an unpaved area adjacent to the former loading dock and abandoned treatment tanks (Photograph Nos. 31 and 32). Sample SS-2 was collected southwest of the abandoned trickling filters (Photograph Nos. 33 and 34). Two soil samples (samples SD-3 and SD-4) were collected in the drainage ditches along the site's western and southern boundaries, to determine whether hazardous substances have migrated from the Systech site by way of surface runoff (Photograph Nos. 35 through 38). Sample SD-5 was collected outside the site fence, in the southeast site corner, to be used as a background sample (Photograph Nos. 39 and 40).

4.0 ANALYTICAL RESULTS

All samples collected during the ESI were analyzed through the U.S. EPA Contract Laboratory Program (CLP). The laboratories analyzed for U.S. EPA Target Compound List (TCL) VOCs, extractable SVOCs, pesticides, and PCBs. The samples were also analyzed for TAL inorganic substances (metals and cyanide). All data were reviewed by U.S. EPA Region 5 for compliance with the terms of the CLP. The laboratory results are summarized in Appendix D.

The concentrations of substances detected in the environmental samples were compared with background concentrations to determine which results were significant. Other factors, such as U.S. EPA contract required quantitation limits (CRQL) for TCL compounds and contract required detection limits (CRDL) for TAL analytes, and relevant QA/QC results, were also considered in evaluating the significance of the data. The significant results are presented in Tables 4 and 5.

4.1 MONITORING WELL SAMPLES

The significant results of the monitoring well sample analyses are presented in Table 4. The complete analytical results are summarized in Table D-1.

The TCL VOCs chloroethane, ethylbenzene, and xylenes were detected at significant concentrations in the sample from well W139. Ethylbenzene and xylenes have been detected in past sampling events at the Systech site. Also, various organic solvents (TCE, PCE) and associated degradation products (such as vinyl chloride) have been detected in groundwater samples during past sampling events at the Systech site. All of these substances are either known to have been treated at the Systech facility or are commonly related to wastes treated at the facility, such as solvents and paint waste (OEPA 1986; Sittig 1985; E&E 1987). Therefore, all of these substances appear to be attributable to the Systech site.

The VOC acetone was also detected in most of the groundwater samples. However, it was also detected in both field rinsate blank samples (EB-1 and EB-2) and trip blank sample TB-2. Also, acetone is a common laboratory contaminant and was detected in the laboratory blank sample associated with the samples from the Systech site. For these reasons, the presence of acetone in the

TABLE 4
SIGNIFICANT FINDINGS OF MONITORING WELL (GROUNDWATER) SAMPLE ANALYSES

SYSTECH

Sampling Location		W132	W133	W139	W140	W140D	W181	W182	W183	W183D	W184
Date		6/21/93	6/21/93	6/25/93	6/25/93	6/25/93	6/21/93	6/21/93	6/21/93	6/21/93	6/21/93
Time		1645	1846	1145	1015	1015	1805	1220	1355	1355	1325
Organic Traffic Report No.		EWP68	EWP64	EWP63	EWP65	EWP66	EWP70	EWP71	EWP72	EWP73	EWP74
Inorganic Traffic Report No.		MEWR86	MEWR82	MEWR81	MEWR83	MEWR84	MEWR88	MEWR89	MEWR90	MEWR91	MEWR92
Temperature (°C)		15	15	15.6	15.7	– –	14.7	13.7	15.1	– –	13.1
Specific Conductivity (umhos/cm)		650	750	875	800	– –	– –	630	660	– –	700
pH		7.83	7.55	6.84	6.83	– –	7.08	7.13	7.62	– –	7.03
Notes						Field duplicate of W140				Field duplicate of W183	
VOLATILE ORGANIC COMPOUNDS	CRQL										
chloroethane	10	10 U	10 U	**89**	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
ethylbenzene	10	10 U	10 U	**160**	10 U	10 U	10 U	10 U	10 U	10 U	10 U
xylenes (total)	10	10 U	10 U	**750 D**	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ANALYTE DETECTED (mg/kg)	CRDL										
arsenic	10	9.6 B	3.8 BW	**50.8 S**	22.5	21.9	5.3 B	10.5	14.6	13.7	2.8 U
iron	100	**1170**	27.4 BJ(H)	**11,700**	**10,800**	**10,900**	15.7 BJ(H)	**1,840**	354	355 J	40.7 B
mercury	0.2	0.10 U	0.10 U	0.13 B	0.10 U	0.11 B	**0.28**	0.10 U	0.10 U	0.10 U	0.10 U

TABLE 4 (Continued)
SIGNIFICANT FINDINGS OF MONITORING WELL (GROUNDWATER) SAMPLE ANALYSES

SYSTECH

Sampling Location		W185	W186	W187	EB-1	EB-2	TB-1	TB-2
Date		6/21/93	6/21/93	6/21/93	6/21/93	6/25/93	6/21/93	6/25/93
Time		1640	1630	1120	1530	1215	0800	0800
Organic Traffic Report No.		EWP69	EWP67	EWP75	EWP76	EWP77	EWP79	EWP80
Inorganic Traffic Report No.		MEWR87	MEWR85	MEWR93	MEWR94	MEWR95	--	--
Temperature (°C)		14.2	16.0	15.0	--	--	--	--
Specific Conductivity (umhos/cm)		450	580	600	--	--	--	--
pH		7.33	7.35	7.55	--	--	--	--
Notes				Background	Field Rinsate Blank	Field Rinsate Blank	Trip Blank	Trip Blank
VOLATILE ORGANIC COMPOUNDS	**CRQL**							
chloroethane	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
ethylbenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
xylenes (total)	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ANALYTE DETECTED (mg/kg)	**CRDL**							
arsenic	10	2.8 U	5.7 B	3.7 B	2.8 UW	2.8 U	--	--
iron	100	1,070 J(H)	335	36.4 BJ(H)	24.1 BJ(H)	5.6 BJ(H)	--	--
mercury	0.2	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--	--

Notes:
All concentrations are in micrograms per liter (µg/L) unless otherwise noted.
Numbers in boldface indicate significant results.
CRQL = Contract-required quantitation limit
CRDL = Contract-required detection limit
-- = Not analyzed

GENERAL QUALIFIERS	DEFINITION
U	The compound or analyte was analyzed for, but not detected. Associated value is the sample quantitation limit (SQL).
H	Analytical bias is high.
J	Value is estimated (also indicates a compound that is detected below the CRQL).
COMPOUND QUALIFIERS	**DEFINITION**
D	Compound was identified at a secondary dilution factor.
ANALYTE QUALIFIERS	**DEFINITION**
B	Value is below the CRDL.
W	Furnace AA post-digestion spike recovery values were outside of control limits.
S	Analyte concentration was determined by Method of Standard Additions (MSA).

TABLE 5
SIGNIFICANT FINDINGS OF SOIL SAMPLE ANALYSES

SYSTECH

Sampling Location		SS-1	SS-2	SD-3	SD-4	SD-5
Date		6/21/93	6/21/93	6/21/93	6/21/93	6/21/93
Time		1130	1107	1003	1030	1045
Organic Traffic Report No.		EWP60	EWP61	EWP57	EWP58	EWP59
Inorganic Traffic Report No.		MEWR78	MEWR79	MEWR75	MEWR76	MEWR77
Notes		Site Soils	Site Soils	Ditch Soils (a)	Ditch Soils (a)	Background Soils (a)
SEMIVOLATILE ORGANIC COMPOUNDS	**CRQL**					
phenanthrene	330	130 J(?)	**6,700**	640	170 J	130 J
anthracene	330	56 J(?)	**1,200 J(?)**	99 J(?)	26 J(?)	20 J(?)
fluoranthene	330	330 J(?)	**9,200**	1,000	280 J(?)	190 J(?)
pyrene	330	190 J(?)	**6,400**	1,400	420 J(?)	310 J(?)
benzo(a)anthracene	330	210 J(?)	**4,500**	910	200 J(?)	130 J(?)
chrysene	330	230 J(?)	**3,900**	650	240 J(?)	160 J(?)
benzo(b)fluoranthene	330	630	**5,400**	1,400 J(?)	400 J(?)	330 J(?)
benzo(k)fluoranthene	330	380 U	**2,000**	430 UJ(?)	290 J(?)	410 U
benzo(a)pyrene	330	300 J(?)	**3,300**	580 J(?)	280 J(?)	150 J(?)
indeno(1,2,3-cd)pyrene	330	280 J(?)	**2,200**	270 J(?)	160 J(?)	68 J(?)
dibenzo(a,h)anthracene	330	380 U	660 J(?)	100 J(?)	71 J(?)	410 U
benzo(g,h,i)perylene	330	270 J(?)	**2,200**	290 J(?)	150 J(?)	410 U
Aroclor 1254	33.0	**110 J(?)**	29 J(?)	43 U	45 U	41 U
PESTICIDE/PCB COMPOUNDS	**CRQL**					
4,4'- DDE	3.3	3.8 U	3.7 UJ(?)	0.84 JP(?)	6.9	4.1 U

Notes:
- All concentrations are in micrograms per kilogram (µg/kg) unless otherwise noted.
- Numbers in boldface indicate significant results.
- CRQL = Contract-required quantitation limit
- CRDL = Contract-required detection limit
- (a) = Samples SD-3, SD-4 and SD-5 were originally collected as sediment samples but were redesignated as soil samples due to the absence of surface water at the sample locations.

GENERAL QUALIFIERS	DEFINITION
U	The compound or analyte was analyzed for but not detected. Associated value is the sample quantitation limit (SQL).
J	Value is estimated (also indicates a compound that is detected below the CRQL).
?	Analytical bias is unknown.
COMPOUND QUALIFIERS	**DEFINITION**
P	Variance between GC columns was greater than 25 percent in pesticide or Aroclor (PCB) analyses. The lower value is reported.

samples does not appear to be related to releases from the Systech site, and the acetone results were not considered significant. No other TCL compounds (VOCs, SVOCs, pesticides, or PCBs) were detected at significant concentrations in the groundwater samples.

The TAL analyte iron was detected in the samples from wells W132, W139, W140, and W182 at concentrations significantly above background. Iron is a naturally-occurring element in local groundwater; however the reported concentrations (particularly those reported in the samples from wells W139 and W140) appear higher than typical naturally-occurring levels. Iron is found in many types of metallic wastes. Several types of wastes that potentially contained metallic substances, such as plating wastes and cutting oils, are known to have been treated on site (E&E 1987). Therefore, it appears that the iron could be related to wastes treated at the Systech site.

The TAL analyte mercury was detected in the sample from well W181 at a concentration significantly above background; however, the reported concentration was relatively low (0.28 μg/L). Significant concentrations of mercury were not detected in on-site soil samples, and available information does not list mercury as a component of wastes handled at the Systech site. Mercury is present in some agricultural chemicals, and agricultural fields are located near well W181 (Sittig 1985; PRC 1993b). Therefore, the mercury detected in well W181 cannot be conclusively attributed to a source at the Systech site at this time.

The reported concentration of the TAL analyte arsenic in the groundwater sample from monitoring well W139 was significantly higher than the concentration detected in the background sample from well W187. Samples collected from well W139 during past sampling events have also contained arsenic concentrations higher than background well W187, indicating that the arsenic levels in site groundwater are above naturally-occurring levels for the area. Arsenic has also been detected in samples from well W140 and, on one occasion (June 1991), in well W181 (Terran 1993).

Because the highest arsenic concentrations have consistently been detected in or downgradient from the main treatment plant operations area, the arsenic may be originating from a source on the site property. However, available information regarding the types and constituents of wastes treated at the Systech site does not specify arsenic as a waste constituent. Significant concentrations of arsenic were not detected in on-site soil samples collected during the 1987 SSI or during the 1993 ESI, and

previous soil sampling performed at the site primarily focused on VOC contamination (E&E 1987). Some limited subsurface soil sampling performed by SME in 1986 indicated that elevated levels of heavy metals (most notably chromium) are present in site soils; however, arsenic was not reported in these results and it is unknown whether the samples were analyzed for arsenic (SME 1986). Previous studies have also suggested that the presence of heavy metals in site groundwater may be related to operations at the former wastewater treatment plant or to off-site sources; however no documentation supporting this theory was provided (Meinert 1980). In summary, although elevated concentrations of arsenic appear to be present in site groundwater, the source of the arsenic is unknown at this time.

4.2 SEDIMENT SAMPLES

The analytical results for sediment sample SD-2 were evaluated using the results for background sample SD-1. Significant concentrations of TCL compounds or TAL analytes were not detected in sample SD-2; therefore, no table of significant findings is presented for the sediment sample data. The complete analytical results for sediment samples are summarized in Table D-2.

4.3 SOIL SAMPLES

Soil samples SS-1, SS-2, SD-3, and SD-4 were evaluated using the results for background sample SD-5. The significant results of the soils analyses are presented in Table 4. The complete analytical results are summarized in Table D-3.

No VOCs were detected at significant concentrations. Significant concentrations of the SVOCs fluoranthene and benzo(a)anthracene were detected in samples SS-2 and SD-3. Sample SS-2 also contained significant concentrations of the SVOCs phenanthrene, pyrene, chrysene, benzo(b)fluoranthene (also known as 3,4-benzofluorene), benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene, and the PCB Aroclor 1254. The pesticide compound 4,4'-DDE was detected in sample SD-4. No other TCL compounds or TAL analytes were detected at significant concentrations in the soil samples.

Most of the TCL compounds detected in the soil samples are polynuclear aromatic hydrocarbons (PAH). PAHs are sometimes present in waste oils and cutting oils, which are known to have been treated at the Systech site (Sittig 1985; E&E 1987). PCBs have also been detected on site in the past. The presence of TCL compounds in the soil samples at concentrations significantly above background confirms that site soils are a potential contaminant source.

5.0 PATHWAYS

This section discusses sources, pathways, and targets. The four pathways are groundwater migration, surface water migration, soil exposure, and air migration.

Based on the results of sampling and other information gathered during the ESI, soils at the Systech site are a contaminant source. Soil sample analytical results indicate that site soils contain elevated levels of TCL compounds. Also, groundwater contamination, that appears to be related to wastes treated at the Systech facility, is present beneath the site.

5.1 GROUNDWATER MIGRATION PATHWAY

The analytical results of groundwater samples collected from the on-site monitoring wells indicate that the Systech site has released contaminants to the local buried valley aquifer. These contaminants include the VOCs 1,1,1-TCA (detected in soil and groundwater samples during the 1987 SSI), chloroethane, toluene, and xylenes (all of which were detected in groundwater samples collected during the 1987 SSI or the 1993 ESI) (E&E 1987). Available information indicates that no continuous, confining layers separate the contaminated portion of the aquifer from portions of the aquifer used for water supplies. Therefore, all persons obtaining drinking water from wells drawing from the sand and gravel aquifer within a 4-mile radius of the Systech site are considered subject to potential contamination.

5.1.1 Geology and Soils

Subsurface materials in the Franklin, Ohio area generally consist of unconsolidated glacial deposits and modern alluvium overlying Ordovician-age shale and limestone bedrock. The present-day Great Miami River follows the course of a deeper, preglacial, buried bedrock valley trending generally from northeast to southwest. This valley is incised into the bedrock to depths of 200 feet or more in its deepest portions. The valley is filled with glacial outwash (sand and gravel) with occasional interbedded till layers (mostly clay and silt). The unconsolidated, valley-fill deposits are known as the Great Miami buried valley aquifer system.

The Systech site is located near the southeastern margin of the buried valley. Available information indicates that the valley deepens, and the unconsolidated, valley-fill deposits thicken, towards the northwest (ODNR 1954-83; 1960). In many areas within the buried aquifer system, the sand and gravel units are separated by a till layer. In some areas, the till acts as a confining layer. However, in the vicinity of the site, the continuity of the till zone is uncertain (USGS 1968). Cross-sections of the buried valley in the area, based on seismic surveys performed during the early 1970s, indicate that the till layer is not present in the site vicinity (Terran 1993). Most available well logs from the area do not indicate that any significant clay layers were encountered while drilling (ODNR 1954-83).

Subsurface deposits on site at Systech reportedly consist of sand and gravel, overlying silty clay, that in turn directly overlies shale bedrock. The total thickness of the unconsolidated deposits (sand, gravel, silt, and clay) ranges from about 25 feet in the southern part of the site to about 60 feet at Clear Creek. The sand and gravel layer and the underlying clay layer are both reportedly saturated. According to Terran, the two zones are hydraulically connected and are therefore considered part of the same aquifer system. The deposits also appear to be in hydraulic communication with Clear Creek and the Great Miami River (Terran 1988).

The depth to groundwater at the site ranges from about 8 to 20 feet, depending on location (PRC 1993b). During the 1986 PA OEPA determined that groundwater flow at the site is northwest, toward the deep part of the buried valley (OEPA 1992). Terran has also reported northwestward flow direction. During the ESI, PRC measured groundwater elevations in all accessible the monitoring wells (see Table 3). The piezometric data appeared generally consistent with data previously reported by Terran and MCD, which had been used to determine the northwestward flow direction in the sand and gravel aquifer (Terran 1988; 1993).

5.1.2 Groundwater Usage

Groundwater obtained from the Great Miami buried valley aquifer is the main source of drinking water in the area. About 26,900 people use groundwater-based municipal water supply systems or private wells that draw water from locations within a 4-mile radius of the Systech site (USGS 1959; 1965a; 1965b; 1965c; City of Franklin 1992; City of Springboro 1992; PRC 1992d; 1993a; 1994a; 1994c; Frost Associates 1994). Table 6 summarizes the population using groundwater within a 4-mile

TABLE 6

POPULATION USING GROUNDWATER FOR DRINKING WATER PURPOSES

Radius From Site (miles)	Municipal Wells	Private Wells
0-0.25	0	0
0.25-0.5	0	0
0.5-1	9,810	78
1-2	1,691	2,149
2-3	7,200	4,100
3-4	0	1,836
Total	18,701	8,163

radius of the Systech site. Most wells in the area draw water from the Great Miami buried aquifer system. Available local well logs indicate that most wells municipal and private wells drawing water from the aquifer are relatively shallow (less than 100 feet deep) and that no continuous confining layers are present within the sand and gravel deposits (ODNR 1954-83).

In general, the shale and limestone bedrock units do not yield sufficient amounts of groundwater for domestic use in upland areas. A few wells in the area draw water from the bedrock in areas adjacent to the buried valley where sufficient recharge is available (ODNR 1960; USGS 1968).

The City of Franklin municipal wells serve about 11,500 people (PRC 1993a; G&M 1989). Available well logs indicate that the Franklin wells are screened in sand and gravel deposits and are about 80 to 90 feet deep (ODNR 1954-83). The service area of the Franklin system includes the entire area within the city limits and part of the village of Chataqua, which is located about 2 miles north of downtown Franklin. The City of Franklin also supplies water to the Warren County Water Department for service to some areas just outside of the Franklin city limits (PRC 1994c). The Franklin water supply is blended. Three of the Franklin wells are located between 0.5 and 1 mile

from the Systech site and produce about 85 percent of Franklin's water supply. The balance of Franklin's water comes from a well that is about 1.5 miles miles away from the site (City of Franklin 1992; 1994; PRC 1992a; 1993b). All of the Franklin wells draw water from the sand and gravel deposits in the buried valley aquifer (ODNR 1954-83; PRC 1993a).

The City of Springboro is supplied by water from 3 municipal wells, located about 2.75 miles north to northeast of the site (in Chataqua). The wells are screened in the sand and gravel deposits and are about 105 feet deep. The Springboro wells serve 7,200 residents in and adjacent to the Springboro city limits and along Pennyroyal Road, which connects Springboro to Chataqua (City of Springboro 1992; PRC 1992c). The Springboro wells also draw water from the buried valley aquifer (ODNR 1954-83).

About 4,600 residents in Carlisle, Ohio, and nearby areas west of the Great Miami River (within four miles of the Systech site), are not served by municipal supplies (U.S. Department of Commerce 1991; PRC 1994a; 1994c) . Most of these residents use private wells (PRC 1994a; 1994c). Available information indicates that most of these wells draw water from the buried valley aquifer at depths of less than 80 feet (ODNR 1954-83; Terran 1993).

Most other residents within a 4-mile radius of the Systech site are served by the Warren County or Middletown municipal water systems. Except for those residents on the outskirts of Franklin previously discussed, these systems currently obtain water from wellfields more than 4 miles away from the Systech site (City of Middletown 1993; PRC 1994c). Warren County is developing a new wellfield about 1.5 miles west of the Systech site, near Twin Creek, southwest of Carlisle, on land owned by MCD. The new wellfield will draw water from the buried valley aquifer and will serve about 9,000 Warren County residents currently served by other Warren County wellfields located more than 4 miles away from the Systech site. Warren County does not plan to extend water service to Carlisle. The new wellfield is expected to be in use by summer 1995 (PRC 1993b; 1993c).

5.2 SURFACE WATER MIGRATION PATHWAY

The analytical results of soil and sediment samples collected during the ESI indicate that hazardous substances are present in soils at the Systech site and have possibly migrated into the drainage ditches surrounding the site. Some of these substances (such as benzo[b]fluoranthene) have relatively high toxicity values and human food chain bioaccumulation potential (U.S. EPA 1993). However, significant concentrations of hazardous substances were not detected in a sediment sample collected where the site drainage enters Clear Creek, and therefore detectable quantities of contaminants do not appear to be migrating into nearby surface water bodies.

All surface runoff from the site drains to Clear Creek, either directly, or by way of the drainage ditches around the site perimeter, which flow intermittently (PRC 1993b). The total drainage area for the site is about 2 acres (PRC 1993b; Terran 1993). The maximum 2-year, 24-hour rainfall for the area is about 2.75 inches (NOAA 1992). The site is located within the 100-year floodplain of the Great Miami River (FEMA 1987). The distance from the nearest documented point of contamination (soil sample location SD-3) to Clear Creek is about 50 feet. These factors indicate a relatively high potential for contaminants to migrate from the Systech site to Clear Creek.

Clear Creek is a small to moderate-sized perennial stream in the site vicinity, with an estimated average flow in the range of about 50 to 100 cubic feet per second (cfs) (PRC 1993b). Clear Creek is used for fishing in the site vicinity (PRC 1992b). No other use of Clear Creek has been documented. Clear Creek flows into the Great Miami River about 0.5 mile west of the Systech site. The flow rate in the Great Miami River, which is also used for fishing, ranges from about 300 to 500 cfs in the area (USGS 1968). Fishing activity in these streams appears to be predominantly recreational; therefore, the amount of fish consumed is probably minimal. However, PRC assumed that fish consumption does occur. No drinking water intakes, endangered species habitats, or wetlands have been identified within 15 miles downstream of the Systech site (PRC 1992b; 1993b).

5.3 SOIL EXPOSURE PATHWAY

Several TCL compounds were detected in soil samples collected at the Systech site during the ESI. However, the amount of contaminated soil at the site is assumed to be relatively small, because much

of the site is paved or covered by concrete structures. PRC estimated the total size of the unpaved areas potentially containing contaminated soil at about 1.5 acres.

There are no workers or residents at the Systech site. The total population residing within a 1-mile radius of the site is about 3,287 people (Frost Associates 1994). However, nearby residents are unlikely to come into contact with contaminated soil, due to limited access. The site is surrounded by a chain-link fence topped with barbed wire. The site does not appear to be used by local children for recreational purposes. During the reconnaissance, PRC observed some graffiti on the wall inside the former pump house, indicating some unauthorized access; however, PRC saw no evidence of frequent recreational use (PRC 1993b).

5.4 AIR MIGRATION PATHWAY

Although nearby residents complained of odors from the Systech site during the late 1970s, no sources likely to release contaminants to air remain on site. Also, it does not appear that analysis of air samples, documenting the source and characteristics of the airborne contaminants, was performed when the odors were reported. The only potential sources of airborne contamination remaining at the Systech site are surficial soils, which were found to contain benzo(b)fluoroanthene, pyrene, and several other TCL compounds at locations sampled during the ESI.

About 97,653 people reside within a 4-mile radius of the Systech site (Frost Associates 1994). No sensitive environments have been identified in this area. In general, the site's potential to release significant quantities of airborne contaminants appears to be limited, because much of the site is paved and the unpaved areas are generally well vegetated. During sampling activities, PRC performed ambient air monitoring with a photoionization detector; no readings above background were noted (PRC 1993b).

REFERENCES

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City of Springboro. 1992. Correspondence (Facsimile) Regarding the Springboro Municipal Water Supply Wells. From Raj Sharma, City of Springboro Engineer. To Patrick T. McGowan, PRC. August 11.

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APPENDIX A

U.S. EPA POTENTIAL HAZARDOUS WASTE

SITE INSPECTION FORM

(FORM 2070-13)

(16 Pages)

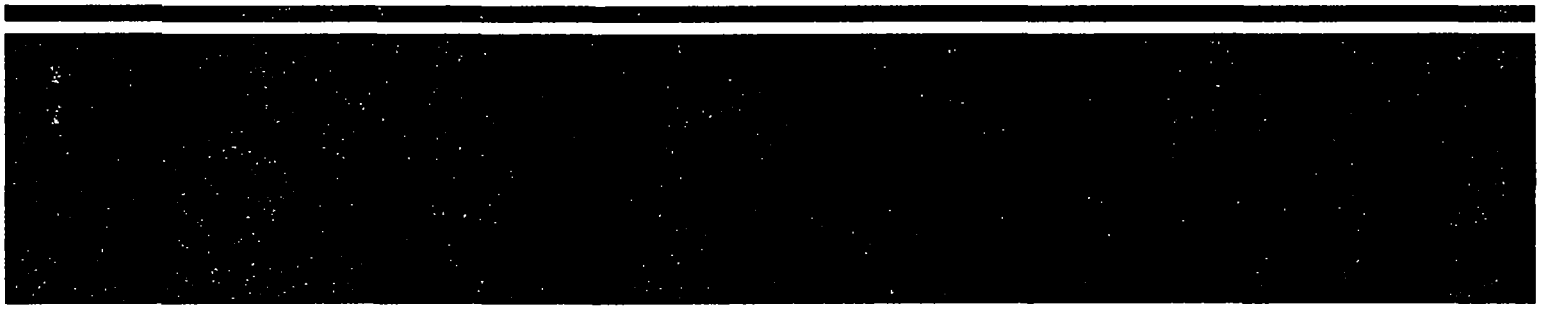
United States
Environmental Protection
Agency

Office of Emergency and
Remedial Response
Washington, DC 20460

EPA Form 2070-13
July, 1981

EPA Potential Hazardous Waste Site

Site Inspection Report



Site Inspection Report

EPA

POTENTAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 852

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Systech Liquid Treatment Corporation	Baxter Road and State Route 73

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG. DIST.
Franklin	OH	45005	Warren	165	06

09 COORDINATES LATITUDE	LONGITUDE
39° 32' 58.0"	84° 18' 58.0"

10 TYPE OF OWNERSHIP (Check one)

☐ A. PRIVATE ☐ B. FEDERAL ___ ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

■ F. OTHER Water Conservation District ☐ G. UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
06/21-25/93 (MONTH DAY YEAR)	☐ ACTIVE ■ INACTIVE	1974 (BEGINNING YEAR) 1978 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ■ B. EPA CONTRACTOR PRC-EMI (Name of Firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR ___ (Name of Firm)

☐ E. STATE ☐ F. STATE CONTRACTOR ___ (Name of Firm) ☐ G. OTHER ___ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Greg Stacy	Environmental Scientist	PRC-EMI	(513) 241-0149
09 OTHER INSPECTORS	10 TITLE	11 ORGANIZATION	12 TELEPHONE NO.
Gabe Rood	Geologist	PRC-EMI	(513) 241-0149
Guy Montfort	Geologist	PRC-EMI	(513) 241-0149
Christine Hirschman	Environmental Scientist	PRC-EMI	(513) 241-0149
Tom Schaffner	Geologist	PRC-EMI	(513) 241-0149
Trisha Miller	Environmental Scientist	PRC-EMI	(513) 241-0149

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Paul Plummer, Miami Conservancy District (MCD)	Engineer	38 E. Monument Ave., Dayton, OH 45402	(513) 223-1271
Stephen Zimmer (Systech Corp.)	Vice-President	245 N. Valley Road, Xenia, OH 45385	(513) 372-8077
			( )
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
■ PERMISSION ☐ WARRANT	N/A	Clear to overcast; 75° - 80°F

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Ms. Jeanne Griffin	U.S. Environmental Protection Agency Region 5	(312) 886-9671

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Guy Montfort		PRC-EMI (for U.S. EPA)	(513) 241-0149	1/6/93 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 852

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER _____ *(Specify)*
- ☐ E. SLURRY
- ■ F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE
(Measures of waste quantities must be independent)

TONS Unknown
CUBIC YARDS Unknown
NO OF DRUMS Unknown

03 WASTE CHARACTERISTICS *(Check all that apply)*

- ■ A. TOXIC
- ■ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- ☐ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			These are wastes treated on-site.
OLW	OILY WASTE	7,612,000	Gallons	No on-site disposal is documented. (A total of
SOL	SOLVENTS	694,200	Gallons	31,387,000 gallons of waste was treated on-site.)
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS	30,000	Gallons	Cyanide-contaminated waste
ACD	ACIDS	7,063,000	Gallons	
BAS	BASES	544,000	Gallons	Caustics
MES	HEAVY METALS	282,000	Gallons	Chrome wastes (various)

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
	Chloroethane	75-00-3	Detected in GW samples during 1993 ESI.	89	ppb
	Ethylbenzene	100-41-4		160	ppb
	Xylenes	1330-20-7		760	ppb
	Arsenic	7440-38-2		60.8	ppb
	Benzo (b) fluoranthene	205-99-2	Detected in soil samples during 1993 ESI	5,400	ppb
	Pyrene	129-00-0		6,400	ppb
	Aroclor 1254	11097-69-1		110	ppb
	Other PAHs	--		--	
	1,1,1-trichloroethane	71-55-6	Detected in GW and/or soil samples during 1987 ESI	15	ppb
	tetrachloroethane	127-18-4		150	ppb
	Chromium	7440-47-3		144	ppm
	Trichloroethene	79-01-6		120	ppb
	Other solvents	--			

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Unknown		FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

U.S. EPA. 1987. Site Inspection Report for Systech Liquid Treatment Corp. Prepared for U.S. EPA. September 8.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 862

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION — 02 ■ OBSERVED (DATE: June 1993) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 26,864 — 04 NARRATIVE DESCRIPTION

Chloroethane, ethylbenzene, xylenes, and arsenic were detected in on-site groundwater samples during the 1993 ESI. Solvents, including 1,1,1-trichloroethane, were also detected in groundwater samples during a 1987 SSI. No drinking water wells are suspected to be subject to actual contamination.

01 ☐ B. SURFACE WATER CONTAMINATION — 02 ☐ OBSERVED (DATE:) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: N/A — 04 NARRATIVE DESCRIPTION

During the ESI contaminants (polynuclear aromatic hydrocarbons [PAHs] have been detected in drainage ditch soils adjacent to site. The ditches drain into Clear Creek. However, no contaminants were detected in sediments in Clear Creek.

01 ☐ C. CONTAMINATION OF AIR — 02 ☐ OBSERVED (DATE:) — ☐ POTENTIAL — ■ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown — 04 NARRATIVE DESCRIPTION

Nearby residents complained of odors on several occasions in 1970s. However, no wastes remain on site and there have been no complaints since Systech closed in 1978. No sampling was performed in 1978 to document the nature of airborne contamination.

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS — 02 ☐ OBSERVED (DATE:) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

N/A. No waste inventory remains on site.

01 ☐ E. DIRECT CONTACT — 02 ☐ OBSERVED (DATE:) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: — 04 NARRATIVE DESCRIPTION

Minimal potential; all waste inventory removed: areas of potentially-contaminated soils are fenced.

01 ■ F. CONTAMINATION OF SOIL — 02 ■ OBSERVED (DATE: June 1993) — ☐ POTENTIAL — ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: Max. of 1.5 (Acres) — 04 NARRATIVE DESCRIPTION

Several organic contaminants (PAHs) were detected in on-site soil samples collected during the ESI.

01 ■ G. DRINKING WATER CONTAMINATION — 02 ☐ OBSERVED (DATE:) — ■ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 26,864 — 04 NARRATIVE DESCRIPTION

Several municipalities and numerous private residences use groundwater in the area. Contaminants have been detected in groundwater at the Systech site but are not suspected to be present in any drinking water supply wells.

01 ■ H. WORKER EXPOSURE/INJURY — 02 ■ OBSERVED (DATE: 1976) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 2 — 04 NARRATIVE DESCRIPTION

Two workers died of cyanide poisoning while cleaning an aboveground tank in 1976.

01 ☐ I. POPULATION EXPOSURE/INJURY — 02 ☐ OBSERVED (DATE:) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: N/A — 04 NARRATIVE DESCRIPTION

Minimal potential - site access is restricted by fence. No waste inventory remains on site.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 936 862

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None known.

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

None known.

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Contaminants detected in ditch soils could migrate to Clear Creek and Great Miami River.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES *(Spills/Runoff/Standing liquids, Leaking Drums)* — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: N/A — 04 NARRATIVE DESCRIPTION

No wastes remain on site. All site runoff flows to ditches or Clear Creek. Minimal potential for soil contaminants to migrate off site.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None suspected. See item 11.M above.

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) — ■ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

Wastes pre-treated on-site from 1974 to 1978 were subsequently treated at MCD's Franklin WWTP - no other information is available.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) — ☐ POTENTIAL — ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None known. Several spills were reported to OEPA; however, no intentional on-site disposal (authorized or unauthorized) is suspected.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None known.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 26,864

IV. COMMENTS

Solvents in site groundwater possibly related to solvent recovery operation that was on site in late 1970s. Source of arsenic in site groundwater is unconfirmed at this time.

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

E & E. 1987.
PRC. 1994

EPA

POTENTAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 936 852

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
☐ A. NPDES				Unknown
☐ B. UIC				Unknown
☐ C. AIR				Unknown
☐ D. RCRA				Unknown
☐ E. RCRA INTERIM STATUS				Unknown
☐ F. SPCC PLAN				Unknown
☐ G. STATE (Specify)				Unknown
☐ H. LOCAL (Specify)				Unknown
☐ I. OTHER (Specify)				Unknown
■ J. NONE				Unknown

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
■ A. SURFACE IMPOUNDMENT	Unknown	Unknown
☐ B. PILES		
■ C. DRUMS, ABOVE GROUND	Unknown	Unknown
■ D. TANK, ABOVE GROUND	Unknown	Unknown
☐ E. TANK, BELOW GROUND		
☐ F. LANDFILL		
☐ G. LANDFARM		
☐ H. OPEN DUMP		
☐ I. OTHER (Specify)		

04 TREATMENT (Check all that apply)

- ☐ A. INCINERATION
- ☐ B. UNDERGROUND INJECTION
- ■ C. CHEMICAL/PHYSICAL
- ☐ D. BIOLOGICAL
- ■ E. WASTE OIL PROCESSING
- ■ F. SOLVENT RECOVERY
- ☐ G. OTHER RECYCLING/RECOVERY
- ■ H. OTHER Neutralization (Specify)

05 OTHER

- ■ A. BUILDINGS ON SITE

06 AREA OF SITE

about 2.1 (Acres)

07 COMMENTS Regarding items III.01. A & E - several former subgrade concrete structures (trickling filters treatment chambers) left over from the old sewage treatment plant were used by Systech for storage treatment plant. The structures are not covered and therefore could be considered as either tanks or surface impoundments.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one) Unknown

☐ A. ADEQUATE, SECURE ☐ B. MODERATE ☐ C. INADEQUATE, POOR ☐ D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.
No waste inventory remains on site. All Systech tanks and equipment have been removed from the site. Only structures that were part of the sewage treatment plant remain on site. (see item III.07 above).

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ☐ YES ■ NO

02 COMMENTS
Site is fenced.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E & E. 1987.
PRC. 1994.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WASTE, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 852

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as appropriate)	SURFACE	WELL	02 STATUS ENDANGERED	AFFECTED	MONITORED	03 DISTANCE TO SITE
COMMUNITY	A. ☐	B. ■	A. ☐	B. ☐	C. ■	A. 0.57 (mi)
NON-COMMUNITY	C. ☐	D. ■	D. ☐	E. ☐	F. ☐	B. about 1.0 (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

■ A. ONLY SOURCE FOR DRINKING ☐ B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) ☐ C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) ☐ D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER 26,864

03 DISTANCE TO NEAREST DRINKING WATER WELL 0.67 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
<10 (ft)	Northwest	<10 (ft)	Unknown (gpd)	■ YES ☐ NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

The City of Franklin wells, City of Springboro wells and the majority of the all private wells within a 4-mile radius draw water from the Great Miami River buried valley aquifer.

10 RECHARGE AREA		11 DISCHARGE AREA	
■ YES ☐ NO	COMMENTS: Soils are permeable sand and gravel.	■ YES ☐ NO	COMMENTS: Groundwater may discharge to Clear Creek.

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

☐ A. RESERVOIR, RECREATION DRINKING WATER SOURCE ☐ B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES ☐ C. COMMERCIAL, INDUSTRIAL ■ D. NOT CURRENTLY USED *

*Except for fishing

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Clear Creek	■	0 (mi)
Great Miami River	■	0.5 (mi)
		(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 3,287 NO. OF PERSONS	B. 15,167 NO. OF PERSONS	C. 30,095 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 0.1 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE	04 DISTANCE TO NEAREST OFF-SITE BUILDING
Unknown	0.1 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is on the southwest edge of Franklin, Ohio. Relatively densely populated areas are east and south of the site; the areas to the west and north are open/rural land. Some heavy industry is located in the area around the site.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WASTE, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 852

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE *(Check one)*

☐ A. 10^{-6} - 10^{-8} cm/sec ☐ B. 10^{-4} - 10^{-6} cm/sec ■ C. 10^{-4} - 10^{-3} cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK *(Check one)*

☐ A. IMPERMEABLE *(Less than 10^{-6} cm/sec)* ■ B. RELATIVELY IMPERMEABLE *(10^{-4} - 10^{-6} cm/sec)* ☐ C. RELATIVELY PERMEABLE *(10^{-2} - 10^{-4} cm/sec)* ☐ D. VERY PERMEABLE *(Greater than 10^{-2} cm/sec)*

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL Ph	
about 35 (ft)	Unknown (ft)	Unknown	

06 NET PRECIPITATION	07 ONE YEAR 24-HOUR RAINFALL	08 SLOPE		
		SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
15 - 30 (in)	2.76 (in)	<3 %	North	<3 %

09 FLOOD POTENTIAL	10
SITE IS IN 100 YEAR FLOODPLAIN	☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS *(5-acre minimum)*		12 DISTANCE TO CRITICAL HABITAT *(of endangered species)*
ESTUARINE	OTHER	>15 (mi)
A. _____ (mi)	B. >15 (mi)	ENDANGERED SPECIES: None

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS, NATIONAL/STATE PARKS FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS PRIME AG LAND	AGRICULTURAL LANDS AG LAND
A. 0.25 (mi)	B. 0.1 (mi)	C. >1 (mi)	D. 0.1 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located near the south edge of the Great Miami River Valley. The valley wall is about 600 feet south of the site. The site is located on a relatively flat terrace, with a slight slope toward Clear Creek (north). The site is surrounded by ditches; therefore no run-on from off-site areas occurs. Site runoff drains to Clear Creek.

VII. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

E & E. 1987
PRC. 1994.

EPA

POTENTAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 936 862

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	11	Organics-Southwest Research Institute (SR1). Inorganics-Skinner & Sherman Laboratories (Skinner).	2/94
SURFACE WATER			
WASTE			
AIR			
RUNOFF			
SPILL			
SOIL	2	Organics- Enseco-Wadsworth/Alert Labs, Inc. Inorganics- American Analytical Testing Services	2/94
VEGETATION			
OTHER (Sediment)	5	Organics-SRI Inorganics-Skinner	2/94

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
Groundwater depth	Measurements taken during ESI sampling activities
Groundwater Ph	
Temperature	
Groundwater conductivity	

IV. PHOTOGRAPHS AND MAPS

01 TYPE ■ GROUND ☐ AERIAL

02 IN CUSTODY OF PRC-EMI
(Name of organization or individual)

03 MAPS
■ YES
☐ NO

04 LOCATION OF MAPS
PRC Cincinnati, Ohio Office

V. OTHER FIELD DATA COLLECTED *(Provide narrative description)*

None.

VI. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

PRC. 1994

EPA

POTENTAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE OH	02 SITE NUMBER D 030 936 852

II. CURRENT OWNER(S)

01 NAME Miami Conservancy District		02 D + B NUMBER Unknown
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)* *38 E. Monument Ave.*		04 SIC CODE Unknown
05 CITY Dayton	06 STATE OH	07 ZIP CODE 45402
01 NAME		02 D + B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D + B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D + B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE
05 CITY	.06 STATE	07 ZIP CODE

PARENT COMPANY *(if applicable)*

08 NAME N/A		09 D + B NUMBER
10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE
12 CITY	13 STATE	14 ZIP CODE
08 NAME		09 D + B NUMBER
10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE
12 CITY	13 STATE	14 ZIP CODE
08 NAME		09 D + B NUMBER
10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE
12 CITY	13 STATE	14 ZIP CODE
08 NAME		09 D + B NUMBER
10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE
12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) *(List most recent first)*

01 NAME City of Franklin		02 D + B NUMBER Unknown
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)* *36 E. Fourth St.*		04 SIC CODE Unknown
05 CITY Franklin	06 STATE OH	07 ZIP CODE 45006
01 NAME		02 D + B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D + B NUMBER
03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE

IV. REALTY OWNER(S) *(if applicable; list most recent first)*

08 NAME N/A		09 D + B NUMBER
10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE
12 CITY	13 STATE	14 ZIP CODE
08 NAME		09 D + B NUMBER
10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE
12 CITY	13 STATE	14 ZIP CODE
08 NAME		09 D + B NUMBER
10 STREET ADDRESS *(P.O. Box, RFD #, etc.)*		11 SIC CODE
12 CITY	13 STATE	14 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

E & E. 1987.
PRC. 1994.

EPA

POTENTAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 862

II. CURRENT OPERATOR *(Provide if different from owner)*

01 NAME	02 D+B NUMBER	04 SIC CODE
None		

03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER
1974 - 1978	

OPERATOR'S PARENT COMPANY *(If applicable)*

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) *(List most recent first; provide only if different from owner)*

01 NAME	02 D+B NUMBER	04 SIC CODE
Systems Technology Corp.	Unknown	Unknown

03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	06 STATE	07 ZIP CODE
245 N. Valley Rd.	OH	43585

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
	Miami Conservancy District

PREVIOUS OPERATOR'S PARENT COMPANY *(If applicable)*

10 NAME	11 D+B NUMBER
None during site operations (1974 - 1978)	

12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER	04 SIC CODE
City of Franklin	Unknwon	Unknown

03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	06 STATE	07 ZIP CODE
36 E. Fourth St.	OH	45005

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1930's - 1972	City of Franklin, OH

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER	04 SIC CODE

03 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD

10 NAME	11 D+B NUMBER

12 STREET ADDRESS *(P.O. Box, RFD #, etc.)*	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

E & E. 1987.
PRC. 1994.

EPA

POTENTAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 852

II. ON-SITE GENERATOR

01 NAME	02 D + B NUMBER
None	
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
06 CITY	06 STATE / 07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D + B NUMBER	01 NAME	02 D + B NUMBER
Unknown			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
06 CITY	06 STATE / 07 ZIP CODE	06 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D + B NUMBER	01 NAME	02 D + B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
06 CITY	06 STATE / 07 ZIP CODE	06 CITY	06 STATE / 07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D + B NUMBER	01 NAME	02 D + B NUMBER
Unknown			
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
06 CITY	06 STATE / 07 ZIP CODE	06 CITY	06 STATE / 07 ZIP CODE
01 NAME	02 D + B NUMBER	01 NAME	02 D + B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
06 CITY	06 STATE / 07 ZIP CODE	06 CITY	06 STATE / 07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

E & E. 1987.
PRC. 1994.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 852

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ G. WASTE DISPOSED ELSEWHERE — 02 DATE Post - 1978 — 03 AGENCY None
04 DESCRIPTION All remaining wastes and Systech equipment were reportedly removed following closure in 1978.

01 ■ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	D 030 935 852

II. PAST RESPONSE ACTIVITIES *(Continued)*

01 ■ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ S. CAPPING/COVERING — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ T. BULK TANKAGE REPAIRED — 02 DATE Post - 1978 — 03 AGENCY None
04 DESCRIPTION All tanks removed.

01 ■ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ 1. ACCESS TO SITE RESTRICTED — 02 DATE Unknown — 03 AGENCY _____
04 DESCRIPTION Site fenced

01 ■ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION N/A

01 ■ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE 1977-1980 — 03 AGENCY OEPA
04 DESCRIPTION Groundwater extraction to mitigate VOC plume.

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

E & E. 1987.
PRC. 1994.

EPA

POTENTAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE OH	02 SITE NUMBER D 030 936 862

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY ENFORCEMENT ACTION ■ YES □ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

The Warren County Health Department Southwest Ohio Air Pollution Control Agency, investigated citizens' complaints regarding odors at the site in 1978. The odors were suspected to be related to either an on-site solvent recovery operation, or a spill of solvents into a diked area around two tanks.

The matter was subsequently investigated by Ohio EPA. The odor problem, and groundwater contamination discovered in 1977, resulted in closure of the site in 1978.

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

E & E. 1987.
PRC. 1994.

APPENDIX B

PHOTOGRAPHIC LOG

(23 Pages)

Photograph No. 1 Location: Outside north fence at Systech site
Orientation: Southwest Date: 04/22/93
Description: Chain-link fence surrounding Systech site; note barbed wire and locked access gate.

Photograph No. 2 Location: North-central part of Systech site
Orientation: North Date: 04/22/93
Description: Former pump house for old sewage treatment plant; only building remaining on site.

Photograph No. 3 Location: East-central part of Systech site
Orientation: Southwest Date: 04/22/93
Description: Former trickling filter with ponded rainwater.

Photograph No. 4 Location: Northwest part of Systech site
Orientation: Southeast Date: 06/21/93
Description: Former loading dock from Systech operations.

Photograph No. 5 Location: Northwest part of Systech site
Orientation: Southeast Date: 06/21/93
Description: Foundation from Systech solvent recovery operation, showing rust stains on concrete where tanks were formerly located.

Photograph No. 6 Location: Northwest part of Systech site
Orientation: West Date: 04/22/93
Description: Drums remaining on site; used by Terran to contain purged groundwater during past sampling events.

Photograph No. 7 Location: Southern boundary of Systech site
Orientation: East Date: 06/21/93
Description: Drainage ditch along southern site boundary.

Photograph No. 8 Location: Western boundary of Systech site
Orientation: North Date: 06/21/93
Description: Drainage ditch along western site boundary.

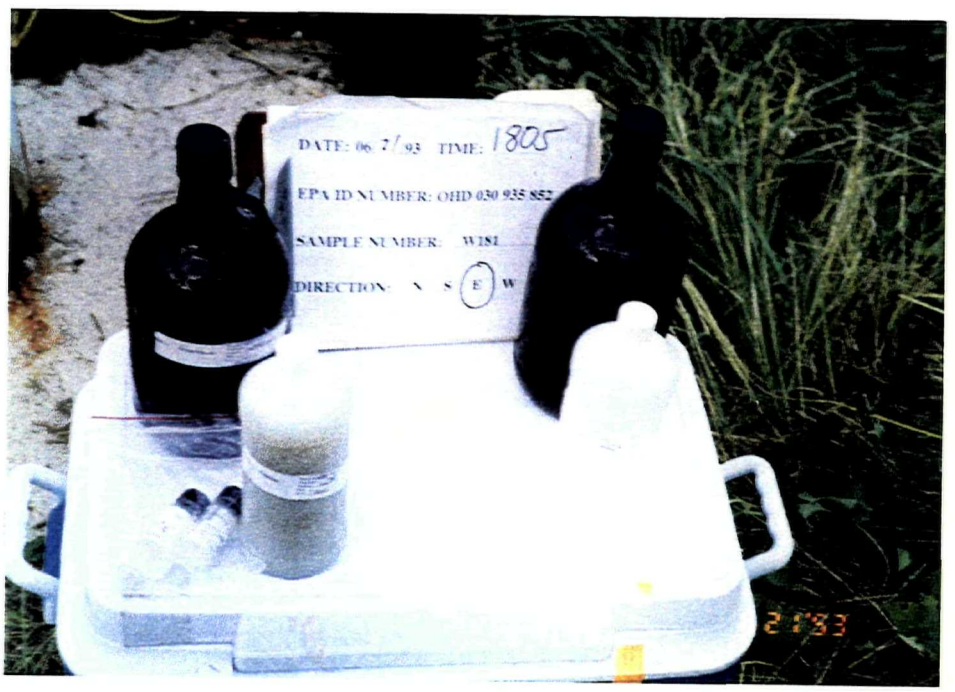
Photograph No. 9 Location: Outside north fence at Systech site
Orientation: Northwest Date: 04/22/93
Description: Confluence of western drainage ditch and Clear Creek.

Photograph No. 10 Location: Outside fence; southwest corner of Systech site
Orientation: Southeast Date: 06/21/93
Description: Groundwater monitoring wells W132 (foreground) and W186 (background).

Photograph No. 11 Location: Outside fence; southwest corner of Systech site
Orientation: East Date: 06/21/93
Description: (Groundwater) monitoring well sample location W132.

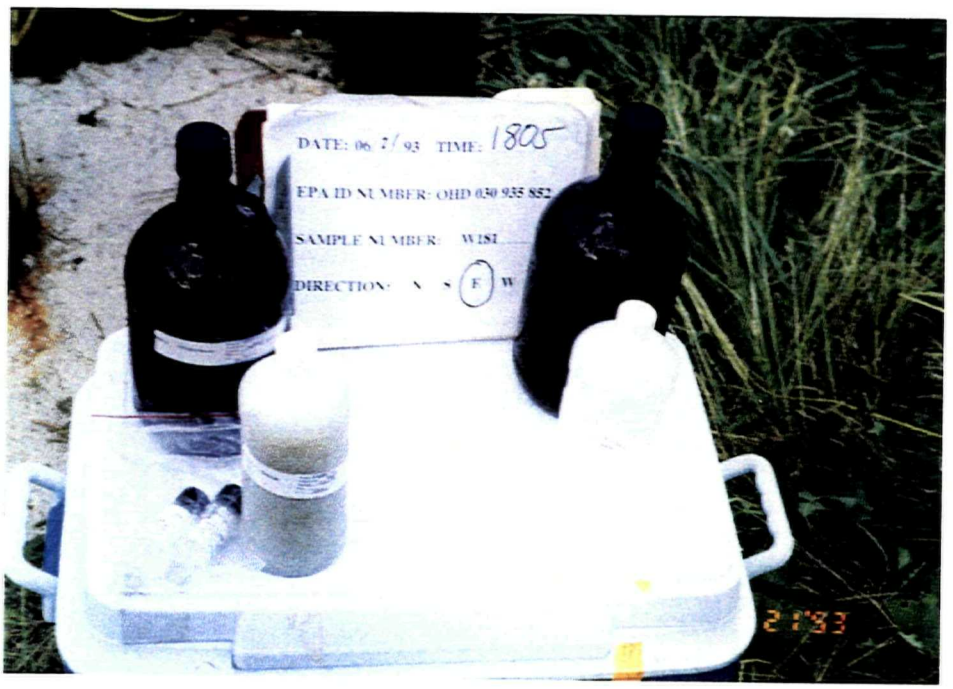
Photograph No. 12 Location: Outside fence; southwest corner of Systech site
Orientation: North Date: 06/21/93
Description: Monitoring well sample location W186.

Photograph No. 13 Location: North side of Clear Creek; west of Baxter Road
Orientation: Southeast Date: 06/21/93
Description: Monitoring well sample location W181.



Photograph No. 14 Location: North side of Clear Creek, west of Baxter Road
Orientation: East Date: 06/21/93
Description: Monitoring well samples at location W181.

Photograph No. 13 Location: North side of Clear Creek; west of Baxter Road
Orientation: Southeast Date: 06/21/93
Description: Monitoring well sample location W181.



Photograph No. 14 Location: North side of Clear Creek, west of Baxter Road
Orientation: East Date: 06/21/93
Description: Monitoring well samples at location W181.

Photograph No. 15 Location: North side of Clear Creek; west of Baxter Road
Orientation: East Date: 06/21/93
Description: Monitoring well samples at location W182.

Photograph No. 16 Location: Between north site fence and Clear Creek
Orientation: West Date: 06/21/93
Description: Monitoring well sample location W133.

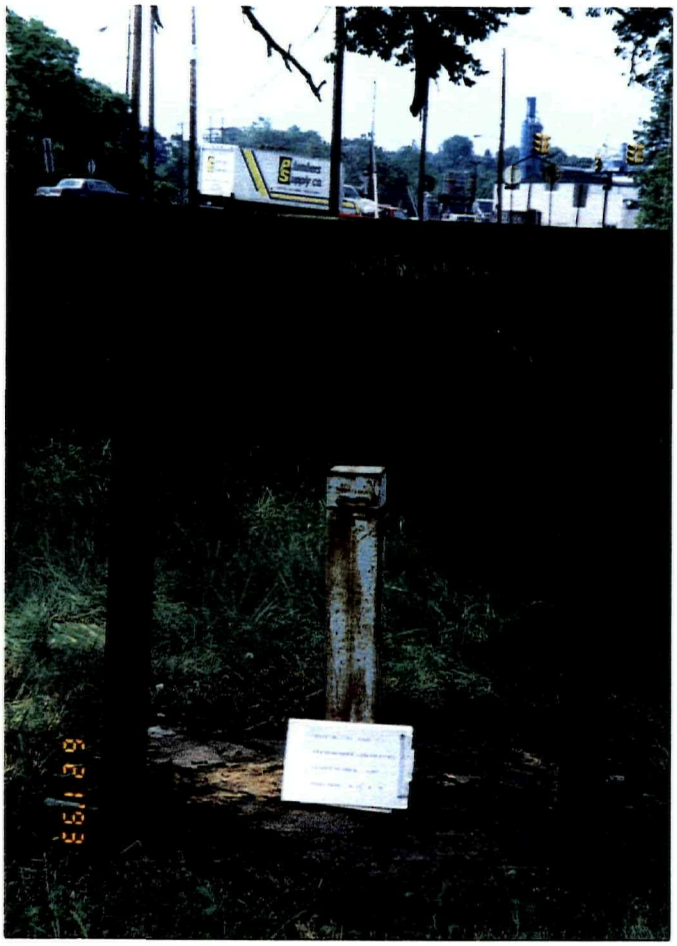
Photograph No. 17 Location: North side of Clear Creek, east of Baxter Road
Orientation: Southwest Date: 06/21/93
Description: Monitoring well sample locations W183 (right) and W184 (left).

Photograph No. 18 Location: North side of Clear Creek, east of Baxter Road
Orientation: East Date: 06/21/93
Description: Monitoring well samples and field duplicates at location W183.

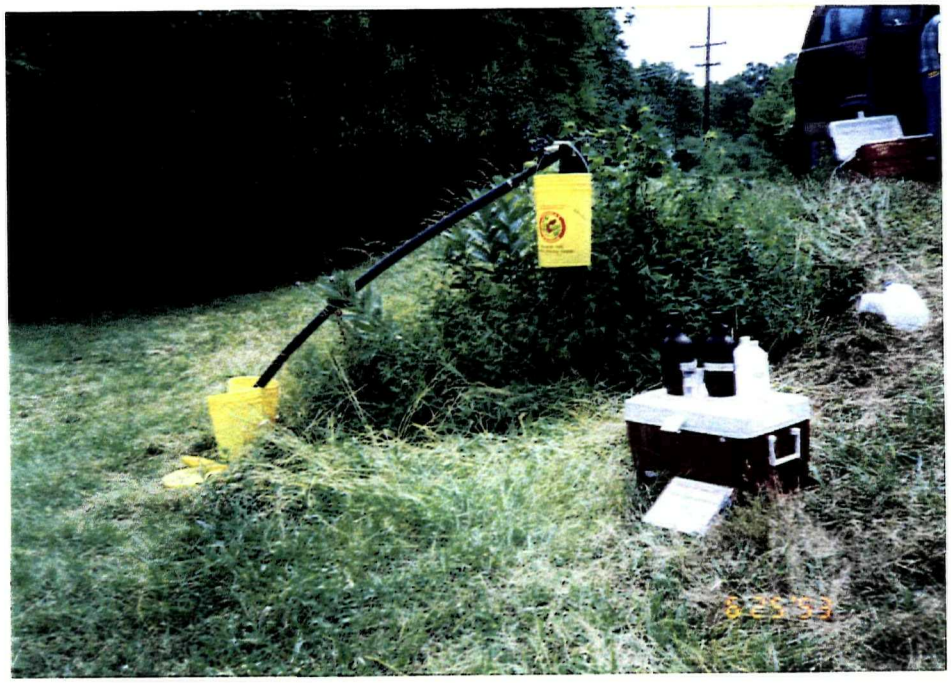
Photograph No. 19 Location: North side of Clear Creek, east of Baxter Road
Orientation: West Date: 06/2193
Description: Monitoring well samples at location W184.

Photograph No. 20 Location: South of Clear Creek; west of Baxter Road
Orientation: Southeast Date: 06/21/93
Description: Monitoring well sample location W185.

Photograph No. 21 Location: South of Clear Creek; west of Baxter Road
Orientation: North Date: 06/21/93
Description: Monitoring well samples at location W185.



Photograph No. 22 Location: North of Clear Creek; 500 feet east of Systech site
Orientation: South Date: 06/21/93
Description: Background monitoring well sample location W187.



Photograph No. 23 Location: Outside north fence, south of Clear Creek
Orientation: East Date: 06/25/93
Description: Monitoring well sample location W139.

Photograph No. 24 Location: North-central part of Systech site
Orientation: East Date: 06/25/93
Description: Monitoring well sample location W140.

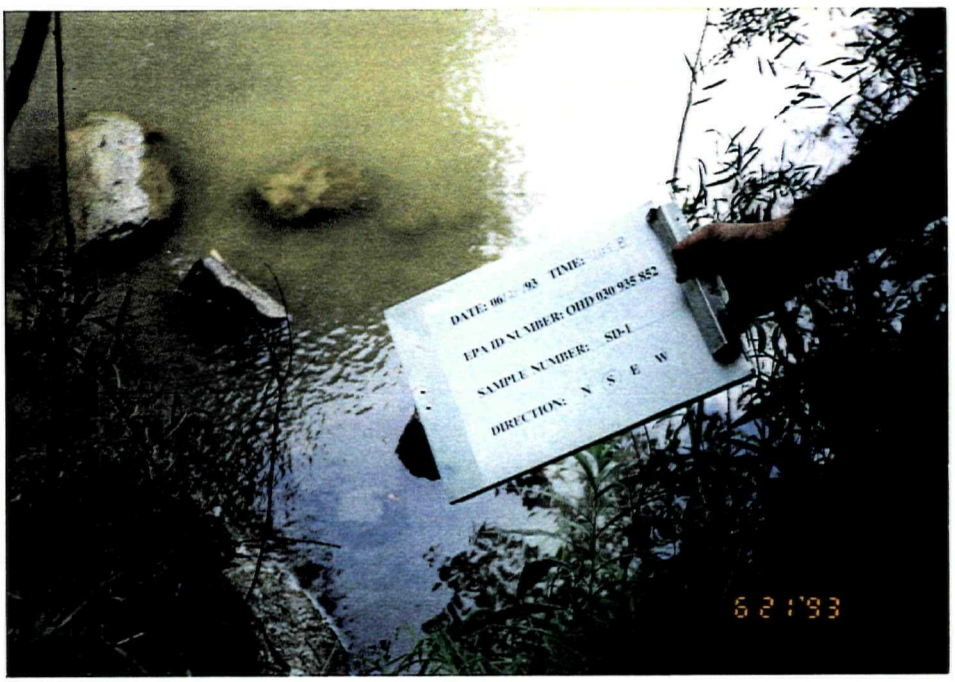
Photograph No. 25 Location: Outside north fence, south of Clear Creek
Orientation: South Date: 06/25/93
Description: Monitoring well samples at location W139.

Photograph No. 26 Location: North-central part of Systech site
Orientation: East Date: 06/25/93
Description: Monitoring well samples and field duplicates at location W140.

Photograph No. 27 Location: Clear Creek, at confluence with western site drainage ditch
Orientation: Northwest Date: 06/21/93
Description: Sediment sample location SD-2.

Photograph No. 28 Location: Sediment sample location SD-2
Orientation: North Date: 06/21/93
Description: Sediment samples at location SD-2.

Photograph No. 29 Location: Clear Creek, upstream (east) of the Systech site
Orientation: East Date: 06/21/93
Description: General area of background sediment sample location SD-1.



Photograph No. 30 Location: Clear Creek, upstream (east) of Systech site
Orientation: South Date: 06/21/93
Description: Close-up of background sediment sample location SD-1.

Photograph No. 31 Location: North of former loading dock, by gate in north fence
Orientation: Southeast Date: 06/21/93
Description: Soil sample location SS-1.

Photograph No. 32 Location: Soil sample location SS-1
Orientation: Southeast Date: 06/21/93
Description: Soil samples at location SS-1.

Photograph No. 33 Location: By former trickling filter, southeast part of Systech site
Orientation: Northeast Date: 06/21/93
Description: Collecting soil sample at location SS-2.

Photograph No. 34 Location: Soil sample location SS-2
Orientation: North Date: 06/21/93
Description: Soil samples at location SS-2.

Photograph No. 35 Location: Drainage ditch, west side of Systech site
Orientation: North Date: 06/21/93
Description: Soil sample location SD-3.

Photograph No. 36 Location: Drainage ditch, west side of Systech site
Orientation: Northeast Date: 06/21/93
Description: Close-up of soil sample location SD-3.

Photograph No. 37 Location: Drainage ditch, south side of Systech site
Orientation: North Date: 06/21/93
Description: Soil sample location SD-4.

Photograph No. 38 Location: Drainage ditch, south side of Systech site
Orientation: North Date: 06/21/93
Description: Close-up of soil sample location SD-4.

Photograph No. 39 Location: Drainage ditch, southeast corner of Systech site
Orientation: Northeast Date: 06/21/93
Description: Background soil sample location SD-5.

Photograph No. 40 Location: Sediment sample location SD-5
Orientation: North Date: 06/25/93
Description: Background soil samples at location SD-5.

APPENDIX C

4-MILE RADIUS MAP

(One Page)

4 MILE

3 MILE

2 MILE

1 MILE

1/2 MILE

1/4 MILE

SITE

AREA NOT SERVED BY PUBLIC WATER SYSTEMS

SPRINGBORO MUNICIPAL WELLS

#1

#2

#3

FRANKLIN WATER SERVICE AREA BOUNDARY

FRANKLIN MUNICIPAL WELL

#8

FRANKLIN MUNICIPAL WELLS

#5

#6

#7

SPRINGBORO WATER SERVICE AREA BOUNDARY

FRANKLIN WATER SERVICE AREA BOUNDARY

MIDDLETOWN WATER SERVICE AREA BOUNDARY

WARREN COUNTY WATER SERVICE AREA

CONTOUR INTERVAL 20 FEET

PRC ENVIRONMENTAL MANAGEMENT, INC.

USGS 7.5 MINUTE TOPOGRAPHIC MAP

N

TITLE 4-MILE RADIUS MAP

SITE NAME SYSTECH LIQUID TREATMENT

CITY, STATE FRANKLIN, OHIO

EPA ID # OHD 030 935 852

NAME MIDDLETOWN	NAME FRANKLIN
DATE 1959	DATE 1965
REVISED 1981	REVISED 1974
NAME MONROE	NAME SPRINGBORO
DATE 1965	DATE 1966
REVISED 1974	REVISED 1981

0 1/2 1 mile

OHIO

QUADRANGLE LOCATION

APPENDIX D

SUMMARY OF LABORATORY RESULTS

(10 Pages)

TABLE D-1
SUMMARY OF MONITORING WELL (GROUNDWATER) SAMPLE ANALYSES

SYSTECH

Sampling Location		W132	W133	W139	W140	W140D	W181	W182	W183	W183D	W184
Date		6/21/93	6/21/93	6/25/93	6/25/93	6/25/93	6/21/93	6/21/93	6/21/93	6/21/93	6/21/93
Time		1645	1846	1145	1015	1015	1805	1220	1355	1355	1325
Organic Traffic Report No.		EWP68	EWP64	EWP63	EWP65	EWP66	EWP70	EWP71	EWP72	EWP73	EWP74
Inorganic Traffic Report No.		MEWR86	MEWR82	MEWR81	MEWR83	MEWR84	MEWR88	MEWR89	MEWR90	MEWR91	MEWR92
Temperature (°C)		15	15	15.6	15.7	– –	14.7	13.7	15.1	– –	13.1
Specific Conductivity (umhos/cm)		650	750	875	800	– –	– –	630	660	– –	700
pH		7.83	7.55	6.84	6.83	– –	7.08	7.13	7.62	– –	7.03
Notes						Field Duplicate of W140				Field Duplicate of W183	
VOLATILE ORGANIC COMPOUNDS	CRQL										
chloroethane	10	10 U	10 U	89	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ
acetone	10	9 J(?)	10 UJ(?)	22 J(?)	10 UJ(?)	21 J(?)	10UJ(?)	17 J(?)	10 UJ(?)	10 UJ(?)	10
benzene	10	10 U	10 U	7 J(?)	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ethylbenzene	10	10 U	10 U	160	10 U	10 U	10 U	10 U	10 U	10 U	10 U
xylenes (total)	10	10 U	10 U	750 D	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILE ORGANIC COMPOUNDS	CRQL										
naphthalene	10	10 U	10 U	5 J(?)	10 U	10 U	10 U	10 U	10 U	10 U	10 U
di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-ethylhexyl)phthalate	10	5 J(?)	10 U	10 U	10 UBJ(?)	10 U	0.6 J(?)	10 U	10 U	10 U	10 U
di-n-octylphthalate	10	10 U	10 U	10 UBJ(?)	10 U	10 U	10 UBJ(?)	10 UBJ(?)	10 U	10 U	10 U
Tentatively Identified Compounds (Total)	N/A	33,600 NJ(?)	8 NJ(?)	1,400 NJ(?)	7 NJ(?)	10 NJ(?)	50 NJ(?)	4 NJ(?)	50 NJ(?)	40 NJ(?)	5 NJ(?)
PESTICIDE/PCB COMPOUNDS	CRQL										
heptachlor epoxide	0.05	0.011 JP(?)	0.05 UJ(L)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
4,4'-DDE	0.10	0.011 JP(?)	0.10 UJ(L)	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
endrin	0.10	0.10 UJ(?)	0.10 UJ(L)	0.003 JP(?)	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.015 JP(?)	0.10 UJ(L)	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-chlordane	0.05	0.028 JP(?)	0.05 UJ(L)	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aroclor 1232	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ(L)	1.0 U	1.0 U
Aroclor 1242	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.03 J(L)	1.0 UJ(L)	1.0 U	1.0 U
Aroclor 1248	1.0	1.0 U	1.0 U	0.049 J(?)	1.0 U	1.0 U	1.0 U	1.0 UJ(L)	1.0 UJ(L)	1.0 U	0.043 J(?)

TABLE D–1 (Continued)
SUMMARY OF MONITORING WELL (GROUNDWATER) SAMPLE ANALYSES

SYSTECH

Sampling Location		W132	W133	W139	W140	W140D	W181	W182	W183	W183D	W184
Notes						Field Duplicate of W140				Field Duplicate of W183	
ANALYTE DETECTED	CRDL										
aluminum	200	23.5 U	23.5 U	22.8 U	22.8 U	24.9 BJ(H)	24.5 BJ(H)	23.5 U	23.5 U	23.5 U	23.5 U
arsenic	10	9.6 B	3.8 BW	50.8 S	22.5	21.9	5.3 B	10.5	14.6	13.7	2.8 U
barium	200	218	258	614	593	596	124 B	257	176 B	177 B	106 B
beryllium	5	0.50 U	0.50 U	0.04 U	0.04 U	0.04 U	0.50 U	0.50 U	0.50 U	0.69 BJ(H)	0.50 U
calcium	5,000	82,600	110,000	125,000	104,000	104,000	77,500	90,040	31,500	31,700	108,000
chromium	10	5.8 U	5.8 U	2.0 BJ(H)	1.8 U	1.8 U	5.8 U	5.8 U	5.8 U	5.8 U	5.8 U
cobalt	50	3.8 U	3.8 U	1.5 U	1.5 U	1.5 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U
copper	25	4.2 U	4.3 B	2.2 U	2.2 U	2.2 U	4.2 U	4.2 U	4.2 U	4.2 U	5.0 B
iron	100	1,170	27.4 BJ(H)	11,700	10,800	10,900	15.7 BJ(H)	1,840	354	355 J	40.7 B
lead	3	2.2 BJ(H)	4.3 WJ(H)	2.5 BJ(H)	1.0 BJ(H)	1.5 BJ(H)	1.9 UJ(H)	1.9 U	2.6 BWJ(H)	4.5 WJ(H)	2.8 BWJ(H)
magnesium	5,000	25,700	29,300	32,400	32,000	32,200	32,500	28,400	23,000	23,100	30,500
manganese	15	493	673	603	1,060	1,070	486	327	116	117	12.2 BJ(H)
mercury	0.2	0.10 U	0.10 U	0.13 B	0.10 U	0.11 B	0.28	0.10 U	0.10 U	0.10 U	0.10 U
nickel	40	6.1 U	6.1 U	3.7 U	3.7 U	3.8 B	6.1 U	6.1 U	6.1 U	6.1 U	6.1 U
potassium	5,000	9,670	4,440 B	4,760 BJ(H)	4,940 BJ(H)	4,990 BJ(H)	5,990	3,280 B	3,280 B	3,220 B	2,930 B
selenium	5	2.6 BSNJ(L)	14.2 +NJ(L)	2.4 UWN*J(L)	2.4 U	2.4 U	2.4 U	2.4 UNJ(L)	2.4 UWNJ(L)	2.6 BWNJ(L)	2.7 BWNJ(L)
sodium	5,000	80,200	38,600	57,100	57,500	57,600	42,800	43,000	121,000	122,000	48,600
zinc	20	3.4 U	3.4 U	30.3	10.0 JB(H)	10.4 BJ(H)	3.4 U	4.8 B	3.4 U	3.4 U	3.5 B

TABLE D-1 (Continued)
SUMMARY OF MONITORING WELL (GROUNDWATER) SAMPLE ANALYSES

SYSTECH

Sampling Location		W185	W186	W187	EB-1	EB-2	TB-1	TB-2
Date		6/21/93	6/21/93	6/21/93	6/21/93	6/25/93	6/21/93	6/25/93
Time		1640	1630	1120	1530	1215	0800	0800
Organic Traffic Report No.		EWP69	EWP67	EWP75	EWP76	EWP77	EWP79	EWP80
Inorganic Traffic Report No.		MEWR87	MEWR85	MEWR93	MEWR94	MEWR95	--	--
Temperature (°C)		14.2	16.0	15.0	--	--	--	--
Specific Conductivity (umhos/cm)		450	580	600	--	--	--	--
pH		7.33	7.35	7.55	--	--	--	--
Notes				Background	Field Rinsate Blank	Field Rinsate Blank	Trip Blank	Trip Blank
VOLATILE ORGANIC COMPOUNDS	**CRQL**							
chloroethane	10	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U
acetone	10	10 UJ	5 J(?)	10 U	45	38 J(?)	10 U	29
benzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
ethylbenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
xylenes (total)	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
SEMIVOLATILE ORGANIC COMPOUNDS	**CRQL**							
naphthalene	10	10 U	10 U	10 U	10 U	10 U	--	--
di-n-butylphthalate	10	10 U	10 U	10 U	10 U	0.6 J(?)	--	--
bis(2-ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	--	--
di-n-octylphthalate	10	10 U	10 UBJ(?)	10 U	10 U	10 U	--	--
Tentatively Identified Compounds (Total)	N/A	80 NJ(?)	8 NJ(?)	4 NJ(?)	42 J(?)	9 NJ(?)	--	--
PESTICIDE/PCB COMPOUNDS	**CRQL**							
heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 UJ(L)	0.05 UJ(L)	0.05 U	--	--
4,4'-DDE	0.10	0.1 U	0.1 U	0.1 UJ(L)	0.1 UJ(L)	0.1 U	--	--
endrin	0.10	0.1 U	0.1 U	0.1 UJ(L)	0.1 UJ(L)	0.1 U	--	--
4,4'-DDD	0.10	0.1 U	0.1 U	0.1 UJ(L)	0.1 UJ(L)	0.1 U	--	--
gamma-chlordane	0.05	0.05 U	0.05 U	0.05 UJ(L)	0.05 UJ(L)	0.05 U	--	--
Aroclor 1232	1.0	0.044 J(L)	0.055 JP(L)	1.0 UJ(L)	1.0 U	1.0 U	--	--
Aroclor 1242	1.0	0.1 UJ(L)	0.1 UJ(L)	0.1 UJ(L)	1.0 U	1.0 U	--	--
Aroclor 1248	1.0	0.1 UJ(L)	0.1 UJ(L)	0.1 UJ(L)	1.0 U	1.0 U	--	--
ANALYTE DETECTED	**CRDL**							
aluminum	200	24.8 BJ(H)	23.5 U	23.5 U	277	22.8 U	--	--
arsenic	10	2.8 U	5.7 B	3.7 B	2.8 UW	2.8 U	--	--
barium	200	46.2 B	262	317	2.5 U	1.0 U	--	--
beryllium	5	0.50 U	0.50 U	0.69 BJ(H)	0.69 BJ(H)	0.40 U	--	--
calcium	5,000	70,700	56,200	55,200	192 B	35.7 U	--	--

TABLE D–1 (Continued)

SYSTECH

SUMMARY OF MONITORING WELL (GROUNDWATER) SAMPLE ANALYSES

Sampling Location		W185	W186	W187	EB–1	EB–2	TB–1	TB–2
Notes				Background	Field Rinsate Blank	Field Rinsate Blank	Trip Blank	Trip Blank
ANALYTE DETECTED (cont.)	**CRDL**							
chromium	10	5.8 U	5.8 U	5.8 U	5.8 U	1.8 U	--	--
cobalt	50	3.8 U	6.4 B	3.8 U	3.8 U	1.5 U	--	--
copper	25	4.2 U	4.3 B	4.2 U	4.2 U	2.2 U	--	--
iron	100	1,070 J(H)	335	36.4 BJ(H)	24.1 BJ(H)	5.6 BJ(H)	--	--
lead	3	2.8 BJ(H)	2.3 BJ(H)	3.3 J(H)	3.4 WJ(H)	0.82 B	--	--
magnesium	5,000	32,200	24,000	22,000	71.5 B	26.6 U	--	--
manganese	15	259	250	740	12.8 B	2.9 BJ(H)	--	--
mercury	0.2	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--	--
nickel	40	6.1U	6.1U	6.1U	6.1U	3.7U	--	--
potassium	5,000	2,450 B	2,070 B	4,470 B	188 U	130 BJ(H)	--	--
selenium	5	2.4 UNJ(L)	2.4 UWNJ(L)	3.1 BWNJ(L)	2.4 UNJ(L)	2.4 UWN*J(?)	--	--
sodium	5,000	17,400	76,400	65,700	219 B	154 B	--	--
zinc	20	10.0 B	3.4 U	3.4 U	3.4 U	4.1 U	--	--

Notes:

All concentrations are in micrograms per liter (µg/L) unless otherwise noted.

CRQL = Contract–required quantitation limit

CRDL = Contract–required detection limit

N/A = Not applicable

-- = Not analyzed

TABLE D-1 (Continued)
SUMMARY OF MONITORING WELL (GROUNDWATER) SAMPLE ANALYSES

SYSTECH

GENERAL QUALIFIERS	DEFINITION
U	The compound or analyte was analyzed for, but not detected. Associated value is the sample quantitation limit (SQL).
H	Analytical bias is high.
L	Analytical bias is low.
?	Analytical bias is unknown.
J	Value is estimated (also indicates a compound that is detected below the CRQL).
COMPOUND QUALIFIERS	**DEFINITION**
P	Variance between GC columns was greater than 25 percent in pesticide or Aroclor (PCB) analyses. The lower value is reported.
B	Compound was detected in an associated laboratory blank.
D	Compound was identified at a secondary dilution factor.
ANALYTE QUALIFIERS	**DEFINITION**
B	Value is below the CRDL.
N	Matrix spike percent recovery values were outside of control limits.
W	Furnace AA post-digestion spike recovery values were outside of control limits.
*	Duplicate relative percent difference values were outside of control limits.
S	Analyte concentration was determined by Method of Standard Additions (MSA).
+	Correlation coefficient for MSA was less than 0.995.

TABLE D-2
SUMMARY OF SEDIMENT SAMPLE ANALYSES

SYSTECH

Sampling Location		SD-1	SD-2
Date		6/21/93	6/21/93
Time		1158	0945
Organic Traffic Report No.		EWP55	EWP56
Inorganic Traffic Report No.		MEWR73	MEWR74
Notes		Background Clear Creek	Clear Creek Sediments
VOLATILE ORGANIC COMPOUNDS		None Detected	
SEMIVOLATILE ORGANIC COMPOUNDS	CRQL		
4-methylphenol	330	44 J	430 U
fluorene	330	8 J	430 U
phenanthrene	330	130 J	72 J
fluoranthene	330	200 J(?)	140 J(?)
pyrene	330	250 J(?)	150 J(?)
benzo(a)anthracene	330	99 J(?)	64 J(?)
chrysene	330	130 J(?)	93 J(?)
bis(2-ethylhexyl)phthalate	330	90 J(?)	37 J(?)
benzo(b)fluoranthene	330	240 J(?)	160 J(?)
benzo(a)pyrene	330	94 J	75 J(?)
indeno(1,2,3-cd)pyrene	330	48 J(?)	32 J(?)
benzo(g,h,i)perylene	330	50 J(?)	27 J(?)
Tentatively Identified Compounds	N/A	28,000 J(?)	7,500 J(?)
PESTICIDES/PCB COMPOUNDS	CRQL		
alpha-BHC	1.7	0.13 JP(?)	2.2 U
heptachlor epoxide	1.7	0.14 JP(?)	0.10 JP(?)
dieldrin	3.3	2.8 J(?)	1.2 J(?)
4,4'-DDE	3.3	0.46 JP(?)	0.29 J(?)
endrin	3.3	0.51 JP(?)	4.3 U
alpha-chlordane	1.7	0.40 JP(?)	0.17 JP(?)
gamma-chlordane	1.7	0.82 JP(?)	0.36 JP
ANALYTE DETECTED (MG/KG)	CRDL		
aluminum	40	2,270 *	1,890 *
arsenic	2	6.0 N*J(L)	3.2 N*J(L)
barium	40	28.1 B	53.5
beryllium	1	0.27 B	0.28 U
calcium	1,000	72,000 *	69,800 *
chromium	2	4.7	4.8
cobalt	10	2.2 B	1.7 B
copper	5	28.0 N*J(L)	6.6 N*J(L)
iron	20	5,880	5,670

TABLE D-2 (continued) SYSTECH
SUMMARY OF SEDIMENT SAMPLE ANALYSES

Sampling Location		SD-1	SD-2
Date		6/21/93	6/21/93
Time		1158	0945
Organic Traffic Report No.		EWP55	EWP56
Inorganic Traffic Report No.		MEWR73	MEWR74
Notes		Background Clear Creek	Clear Creek Sediments
ANALYTE DETECTED (MG/KG) (cont.)	CRDL		
lead	0.6	22.8 *J(?)	7.5 *J(?)
magnesium	1,000	23,000 *J(?)	19,800 *J(?)
manganese	3	177 N*J(H)	166 N*J(H)
mercury	0.1	0.06 U	0.06 B
nickel	8	4.4 B	4.4 B
potassium	1,000	374 B	323 B
selenium	1	0.63 BNJ(L)	0.58 UNJ(L)
sodium	1,000	130 B	124 B
vanadium	10	8.6 B	6.9 B
zinc	4	31.2 *J(?)	30.0 *J(?)

Notes:
All concentrations are in micrograms per kilogram (µg/kg) unless otherwise noted.
CRQL = Contract-required quantitation limit
CRDL = Contract-required detection limit. For soils and sediments this value is calculated based on 100% solids. Value may vary by sample depending on dry weight.
ND = Not detected

GENERAL QUALIFIERS	DEFINITION
U	The compound or analyte was analyzed for, but not detected. Associated value is the sample quantitation limit (SQL)
H	Analytical bias is high.
L	Analytical bias is low.
?	Analytical bias is unknown.
J	Value is estimated (also indicates a compound that is detected below the CRQL.)
COMPOUND QUALIFIERS	**DEFINITION**
P	Variance between GC columns was greater than 25 percent in pesticide or Aroclor (PCB) analyses. The lower value is reported.
ANALYTE QUALIFIERS	**DEFINITION**
B	Value is below the CRDL.
N	Matrix spike percent recovery values were outside of control limits.
*	Duplicate relative percent difference values were outside of control limits.

TABLE D-3
SUMMARY OF SOIL SAMPLE ANALYSES

SYSTECH

Sampling Location		SS-1	SS-2	SD-3	SD-4	SD-5
Date		6/21/93	6/21/93	6/21/93	6/21/93	6/21/93
Time		1130	1107	1003	1030	1045
Organic Traffic Report No.		EWP60	EWP61	EWP57	EWP58	EWP59
Inorganic Traffic Report No.		MEWR78	MEWR79	MEWR75	MEWR76	MEWR77
Notes		Site Soils	Site Soils	Ditch Soils (a)	Ditch Soils (a)	Background (a)
VOLATILE ORGANIC COMPOUNDS		None Detected				
SEMIVOLATILE ORGANIC COMPOUNDS	**CRQL**					
phenol	330	34 J(?)	1,500 U	430 U	440 U	410 U
isophorone	330	37 J(?)	1,500 U	35 J	440 U	410 U
naphthalene	330	19 J(?)	360 J(?)	33 J	440 U	410 U
2-methylnaphthalene	330	27 J(?)	270 J(?)	26 J	440 U	410 U
acenaphthylene	330	58 J(?)	740 J(?)	110 J	440 U	410 U
acenaphthene	330	380 U	130 J(?)	430 U	1,100 UJ	1,000 UJ
dibenzofuran	330	380 U	530 J(?)	27 J	440 U	410 U
fluorene	330	380 U	660 J(?)	45 J	440 U	410 U
phenanthrene	330	130 J(?)	6,700	640	170 J	130 J
anthracene	330	56 J(?)	1,200 J(?)	99 J(?)	26 J(?)	20 J(?)
carbozole	330	20 J(?)	580 J(?)	52 J(?)	440 U	410 U
fluoranthene	330	330 J(?)	9,200	1,000	280 J(?)	190 J(?)
pyrene	330	190 J(?)	6,400	1,400	420 J(?)	310 J(?)
butylbenzylphthalate	330	42 J(?)	1,500 U	190 J(?)	440 U	410 UJ(?)
benzo(a)anthracene	330	210 J(?)	4,500	910	200 J(?)	130 J(?)
chrysene	330	230 J(?)	3,900	650	240 J(?)	160 J(?)
bis-(2-ethylhexyl)phthalate	330	380 U	1,500 JBU	430 U	52 J(?)	41 J(?)
benzo(b)fluoranthene	330	630	5,400	1,400 J(?)	400 J(?)	330 J(?)
benzo(k)fluoranthene	330	380 U	2,000	430 UJ(?)	290 J(?)	410 U
benzo(a)pyrene	330	300 J(?)	3,300	580 J(?)	280 J(?)	150 J(?)
indeno(1,2,3-cd)pyrene	330	280 J(?)	2,200	270 J(?)	160 J(?)	68 J(?)
dibenzo(a,h)anthracene	330	380 U	660 J(?)	100 J(?)	71 J(?)	410 U
benzo(g,h,i)perylene	330	270 J(?)	2,200	290 J(?)	150 J(?)	410 U
Tentatively Identified Compounds	N/A	7,000 J(?)	22,700 (?)	45,000 JN(?)	32,000 JN(?)	16,400 JN(?)
PESTICIDES/PCB COMPOUNDS	**CRQL**					
delta-BHC	1.7	2.0 U	1.9 UJ (?)	0.53 JP(?)	0.49 JP(?)	2.1 U
heptachlor	1.7	2.0 U	1.9 UJ (?)	0.16 JP(?)	2.3 U	2.1 U
heptachlor epoxide	1.7	2.0 U	1.9 UJ (?)	0.46 JP(?)	0.24 JP(?)	2.1 U
dieldrin	3.3	1.6 JP(?)	3.7 UJ (?)	1.7 JP(?)	2.0 JP(?)	0.18 JP(?)
4,4'-DDE	3.3	3.8 U	3.7 UJ (?)	0.84 JP(?)	6.9	4.1 U
endrin	3.3	3.8 U	3.7 UJ (?)	6.8	0.28 JP(?)	0.24 JP(?)
4,4'-DDT	3.3	3.8 U	3.7 UJ (?)	4.3 U	8.4	0.55 JP(?)

TABLE D-3 (continued)
SUMMARY OF SOIL SAMPLE ANALYSES

SYSTECH

Sampling Location		SS-1	SS-2	SD-3	SD-4	SD-5
Date		6/21/93	6/21/93	6/21/93	6/21/93	6/21/93
Time		1130	1107	1003	1030	1045
Organic Traffic Report No.		EWP60	EWP61	EWP57	EWP58	EWP59
Inorganic Traffic Report No.		MEWR78	MEWR79	MEWR75	MEWR76	MEWR77
Notes		Site Soils	Site Soils	Ditch Soils (a)	Ditch Soils (a)	Background (a)
PESTICIDES/PCB COMPOUNDS (cont.)	**CRQL**					
methoxychlor	17.0	0.25 U	1.9 UJ (?)	22 U	35 B	21 U
endrin ketone	3.3	0.25 U	3.7 UJ (?)	2.1 JP(?)	4.5 U	4.1 U
alpha-chlordane	1.7	3.4 JP(?)	1.9 U	0.26 JP(?)	0.48 JP(?)	2.1 U
gamma-chlordane	1.7	4.1 JP(?)	1.9 U	0.38 JP(?)	0.40 JP(?)	2.1 U
Aroclor 1242	33.0	0.50 U	3.7 UJ (?)	32 J(?)	45 U	41 U
Aroclor 1254	33.0	110 J(?)	29 J(?)	43 U	45 U	41 U
ANALYTE DETECTED (MG/KG)	**CRDL**					
aluminum	40	5,780	10,400	9,830 *	8,870 *	9,470 *
arsenic	2	5.9	8.5	8.5 N*J(L)	6.3 N*J(L)	6.3 N*J(L)
barium	40	104	132	113	43.8 B	87.9
beryllium	1	0.48 B	0.96 B	0.64 B	0.43 B	0.44 B
calcium	1,000	129,000 EJ(?)	32,700 EJ(?)	51,200 *	43,500 *	30,100 *
chromium	2	48.0 NJ(H)	23.4 NJ(H)	24.7	13.3	15.6
cobalt	10	5.3 B	7.7 B	8.2 B	7.2 B	7.4 B
copper	5	56.6 NJ(H)	33.7 NJ(H)	56.0 N*J(L)	18.8 N*J(L)	28.2 N*J(L)
iron	20	37,200 E*J(?)	17,200 E*J(?)	16,400	17,700	17,100
lead	0.6	148	92.0	118 *J(?)	78.1 *J(?)	115 *J(?)
magnesium	1,000	28,200 EJ(?)	13,800 EJ(?)	18,800 *J(?)	16,400 *J(?)	13,400 *J(?)
manganese	3	709 E*J(?)	590 E*J(?)	491 N*J(H)	568 N*J(H)	578 N*J(H)
mercury	0.1	0.27	0.13	0.28	0.11 B	0.18
nickel	8	15.9 *J(?)	23.0 *J(?)	26.1	17.2	16.8
potassium	1,000	961 B	1,720	1,310 B	1,770	1,660
sodium	1,000	170 JB(H)	97.6 JB(H)	283 B	158 B	113 B
vanadium	10	15.8	25.6	19.9	19.8	21.7
zinc	4	200 ENJ(H)	131 ENJ(H)	215 *J(?)	87.2 *J(?)	206 *J(?)
cyanide	2	0.57 U	0.55 U	.063 U	0.63 U	1.0

Notes:

All concentrations are in micrograms per kilogram (µg/kg) unless otherwise noted.

CRQL = Contract-required quantitation limit

CRDL = Contract-required detection limit

N/A = Not applicable

(a) = Samples SD-3, SD-4 and SD-5 were originally collected as sediment samples but were redesignated as soil samples due to the absence of surface water at the sample locations.

TABLE D-3 (Continued)

SYSTECH

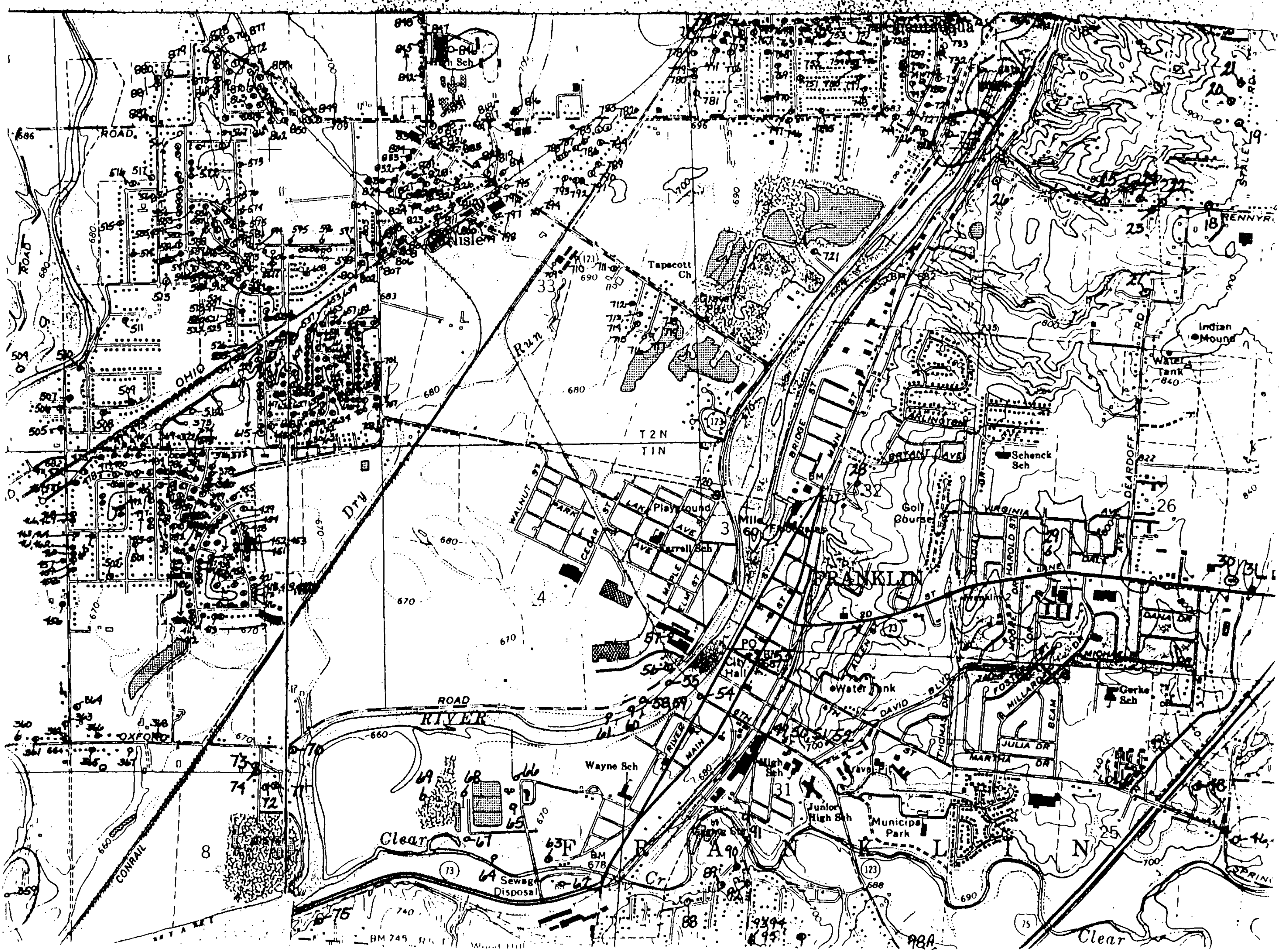
SUMMARY OF SOIL SAMPLE ANALYSES

GENERAL QUALIFIERS	DEFINITION
U	The compound or analyte was analyzed for but not detected. Associated value is the sample quantitation limit (SQL).
H	Analytical bias is high.
L	Analytical bias is low.
J	Value is estimated (also indicates a compound that is detected below the CRQL).
?	Analytical bias is unknown.
COMPOUND QUALIFIERS	**DEFINITION**
P	Variance between GC columns was greater than 25 percent in pesticide or Aroclor (PCB) analyses. The lower value is reported.
B	Compound was detected in an associated laboratory blank.
ANALYTE QUALIFIERS	**DEFINITION**
B	Value is below the CRDL.
E	Value is estimated due to matrix interferences.
N	Matrix spike percent recovery values were outside of control limits.
*	Duplicate relative percent difference values were outside of control limits.

ATTACHMENT A

REGIONAL WELL LOGS

(24 Sheets)


Chautauqua
High Sch
ROAD
OHIO
Tapecott Ch
Indian Mound
Water Tank
STALEY RD
DEARDOFF RD
T2N
T1N
Dry Run
ARLINGTON AVE
BRYANT AVE
Schenck Sch
BRIDGE ST
MAIN ST
WALNUT ST
PARK
CLEAR ST
LAKE
Playground
Farrell Sch
MAPLE
ELM ST
Golf Course
VIRGINIA AVE
HAROLD ST
DALE
FRANKLIN
DANA DR
PO
City Hall
Water Tank
DAVID BLVD
THOMAS DR
FOSTER
MILLARD
BEAM
MICHAEL
Gerke Sch
JULIA DR
MARTHA DR
ROAD
RIVER
OXFORD
CONRAIL
Wayne Sch
High Sch
Junior High Sch
Municipal Park
Clear
Cr
Sewage Disposal
F R A N K L I N
Clear
33
3
4
8
25
26
31
32

WELL LOG AND DRILLING REPORT

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

593755

COUNTY Warren TOWNSHIP Franklin SECTION OF TOWNSHIP

OWNER Village of Springboro ADDRESS Route 73, Springboro, Ohio

LOCATION OF PROPERTY West Bank of Miami River in Carlisle, Ohio

CONSTRUCTION DETAILS

sing diameter 16" Length of casing 76'

pe of screen 125 s.s. Length of screen 30'

pe of pump Byron Jackson Vertical turbine

pacity of pump 1000 GPM

pth of pump setting 70'

te of completion July 1981

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 1001 gpm Duration of test 24 hrs

Drawdown 5 ft Date 3/16/81

Static level (depth to water) 16'9" ft

Quality (clear, cloudy, taste, odor) Clear

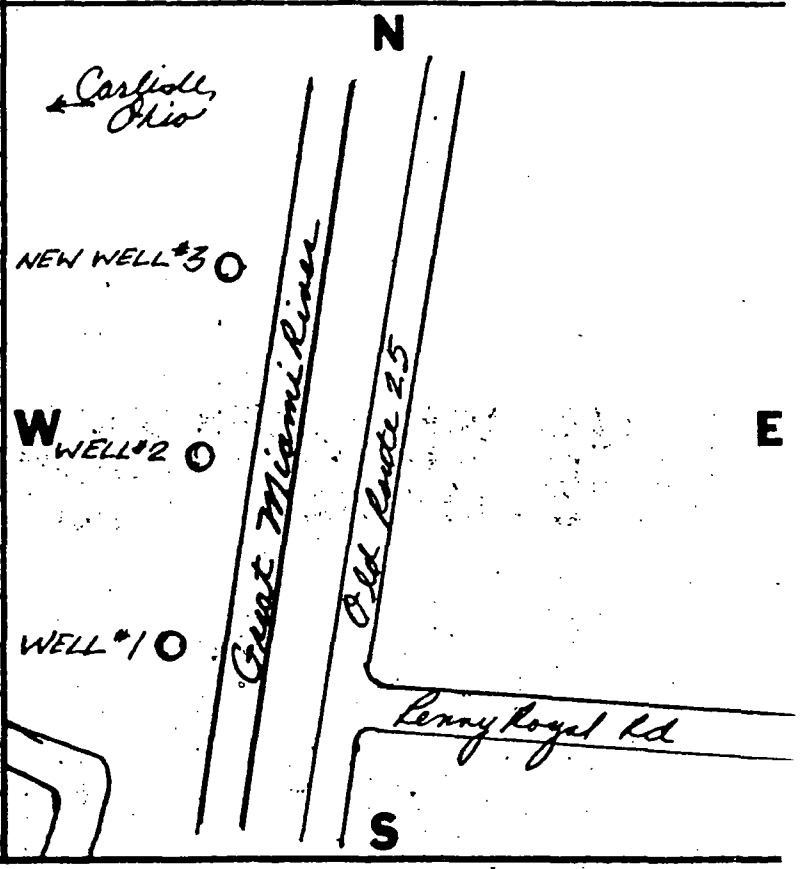
Pump installed by Moody's of Dayton, Inc.

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
ill, topsoil, roots	0 ft	3 ft
oots & boulders	3	8
ry gravel	8	30
ravel & large flat rocks	30	40
edium Gravel	40	75
and & gravel	75	106
hale, rock	106	

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Moody's of Dayton, Inc. DATE July 8, 1981

ADDRESS 4359 Infirmary Rd., P.O. Box 123, Miamisburg, Ohio 45342 SIGNED Kenneth L. Grant

*If additional space is needed to complete well log, use next consecutive numbered form.

ORIGINAL COPY - ODNR DIVISION OF WATER . FOUNTAIN SQ.. COLS.. OHIO 43224 (734)

SE USE PENCIL
OR TYPEWRITER
DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

№ 342976

County Warren Township Franklin Section of Township

Owner City of Franklin Address Franklin, Ohio

Location of property on Alford Rd., so. of Pumping Sta., 850 ft. frm R.R. Bridge, 100 ft. frm pipe

st Well CONSTRUCTION DETAILS

sing diameter 8" Length of casing 105 ft.
rpe of screen Length of screen
rpe of pump
ipacity of pump
epth of pump setting
ate of completion 9/29/66

BAILING OR PUMPING TEST

Pumping Rate G.P.M. Duration of test hrs.
Drawdown ft. Date
Static level-depth to water ft.
Quality (clear, cloudy, taste, odor)

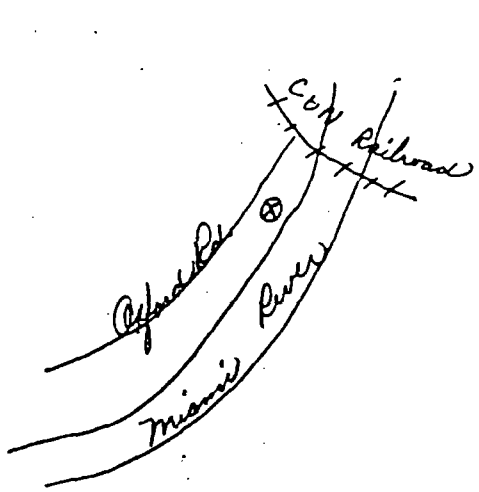
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Sand	0 Feet	25 Ft.
Gravel	25	30
Hood coarse gravel & coarse sand	30	65
Hood coarse gravel & medium sand	65	93
Brown clay w/ slate sticks	93	100
Blue shale	100	105

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm MOODY'S OF DAYTON, INC.
150 North Dixie Drive
Vandalia, Ohio
SINCE 1891
Address

Date 9/29/66
Signed Ed. Wagner - President

*If additional space is needed to complete well log, use next consecutive numbered form.

55

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 183363

County Wayyen Township Franklin Section of Township

Owner Miami Valley Coated Paper Co Address Franklin, Ohio

Location of property Rear of plant-West bank of Miami River, South 2 blocks of bridge

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing 71'
Type of screen Johnson Length of screen 10'
Type of pump D.W. Turbine
Capacity of pump 175 G.P.M.
Depth of pump setting 50'
Date of completion

BAILING OR PUMPING TEST

Pumping rate ✓ G.P.M. Duration of test hrs.
Drawdown ft. Date
Developed capacity
Static level—depth to water 19 ft.
Pump installed by Will be by us

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	12 Ft.
Gravel-dry	12	28
Sand & gravel. Water bearing	28	81

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

W. E.

S.

See reverse side for instructions

Drilling Firm W. H. Boger & Sons Date 10/20/56

Address Cols, Ohio Signed W. H. Boger

(57)

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

No. 342987

County Warren Township Franklin Section of Township

Owner City of Franklin Address Franklin, Ohio

Location of property Near Test Well on Offord Rd.

24" Well CONSTRUCTION DETAILS

Casing diameter 24" Length of casing 90'
Type of screen Red Brass Length of screen 35'
Type of pump Vertical Turbine (Test)
Capacity of pump 1600 G.P.M.
Depth of pump setting
Date of completion Oct. 18, 1967

BAILING OR PUMPING TEST

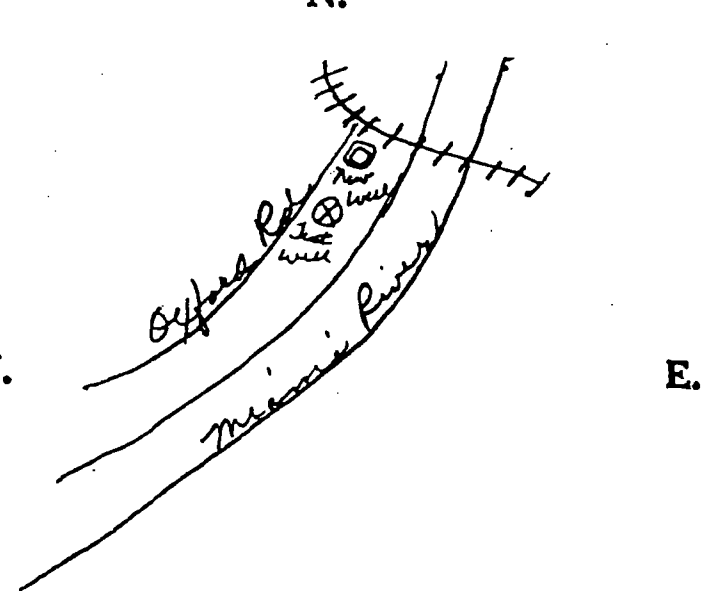
Pumping Rate 449 G.P.M. Duration of test 7 hrs.
Drawdown 7' ft. Date Oct. 18, 1967
Static level-depth to water 16'6" ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by C. O. Burgess

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Top soil & Sand	0 Feet	9 Ft.
Sand & few gravel & Wood	9	17
Fine Sand & few gravel	17	37
Fine " & Coarse "	37	50
" " & " "	50	62
" " "	62	70
" " "	70	74
Blue Clay (Lime Chips)	74	76
Blue Sand & few gravel (dty)	76	80
" " " "	80	85
Blue greenish blue Clay	85	90

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Moody's of Dayton, Inc. Date November 13, 1967
Address P.O. Box 155, Vandalia, Ohio 45377 Signed V. C. Caspel

If additional space is needed to complete well log, use next consecutive numbered form.

WE . LOG AND DRILLING RE ORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 395597

County Warren Township Franklin Section of Township

Owner Village of Franklin, Ohio Address N. 4th St., Franklin, O. 45005

Location of property 100' off Oxford (SE.), 1100' from RR.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 166

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion 29 October 1969

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Static level-depth to water approx. 10 ft.

Quality (clear, cloudy, taste, odor)

Pump installed by

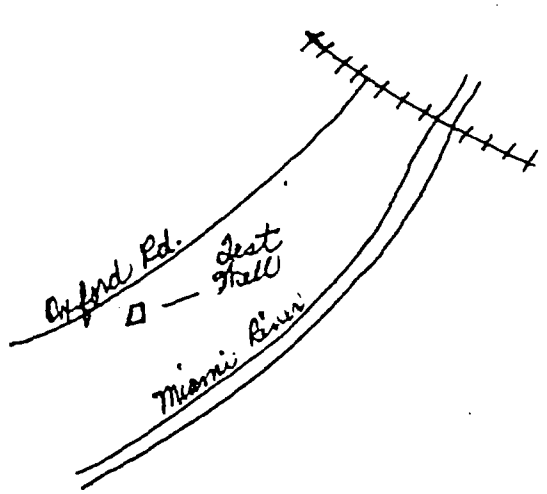
Test Hole

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Sandy till	0 Feet	15 Ft.
Dirty sand & gravel	15	25
Coarse sand & med. gravel	25	60
Sandy clay with few gravels	60	65
Sand & gravel	65	69
Hard clay	69	75
Coarse sand & Coarse gravel (good formation)	75	96
Gray Clay	96	126
Boulders	126	130
Hard coarse sand & co. gravel	130	166

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm MOODY'S OF DAYTON, INC.
P. O. Box 155 Area Code 513
Address Vandalia, Ohio 45377 898-3969

Date 17 March 1970

Signed Barbara Cason

(61)

If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

454760

County ~~MONTGOMERY~~ Warren Township ~~WARREN~~ Franklin Section of Township 4

Owner CITY OF FRANKLIN Address Franklin, Ohio

Location of property Well No. 5 - Rt. 73 into Frankain to stoplight at River. Then straight across ~~river to first road turn left approx. ½ mile on left.~~

CONSTRUCTION DETAILS

sing diameter 16" Length of casing 64'

pe of screen STAINLESS Length of screen 20'

pe of pump

pacity of pump

pth of pump setting

te of completion

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Static level-depth to water 15 ft.

Quality (clear, cloudy, taste, odor) clear

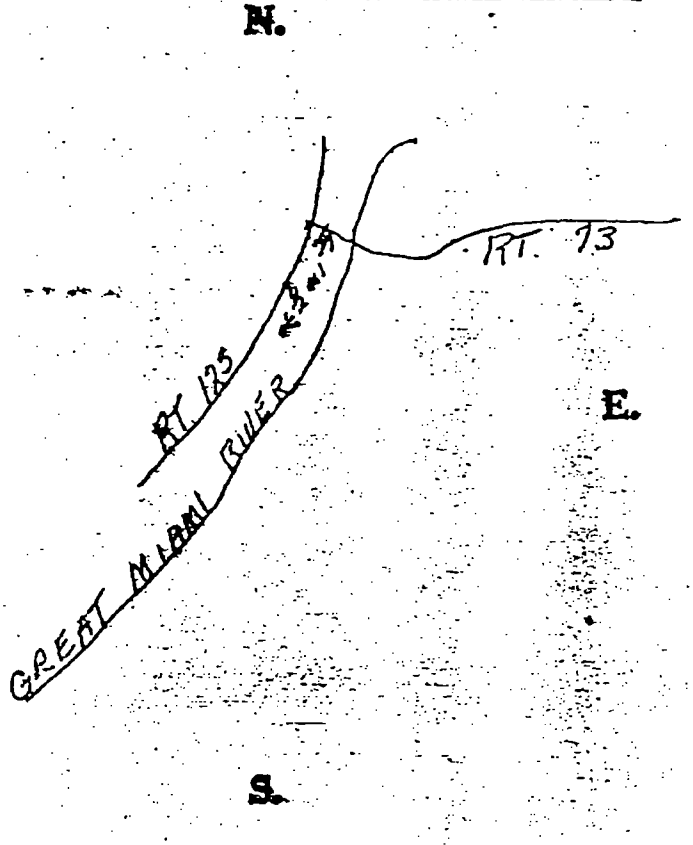
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Fill	0 Feet	3 Ft.
Silty Sand	3	9
sge Stone + Gravel	9	30
use gravel + Stones	30	84

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Dunbar Drilling Inc. Date 4-22-74

Address 307 Broadway, Swanton, Ohio Signed Dale R. Dunbar
Dale R. Dunbar, President

If additional space is needed to complete well log, use next consecutive numbered form.

58/59

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 415251

County Warren Township Franklin Section of Township

Owner Duff Bros Realty Address 101 S. Broad St. Middletown, O

Location of property Meadowlark Skyland Circle Sub. Div. Lot # 76

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 48'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion 11-3-70

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 20 G.P.M. Duration of test hrs.

Drawdown None ft. Date

Static level-depth to water 25 ft.

Quality (clear, cloudy, taste, odor)

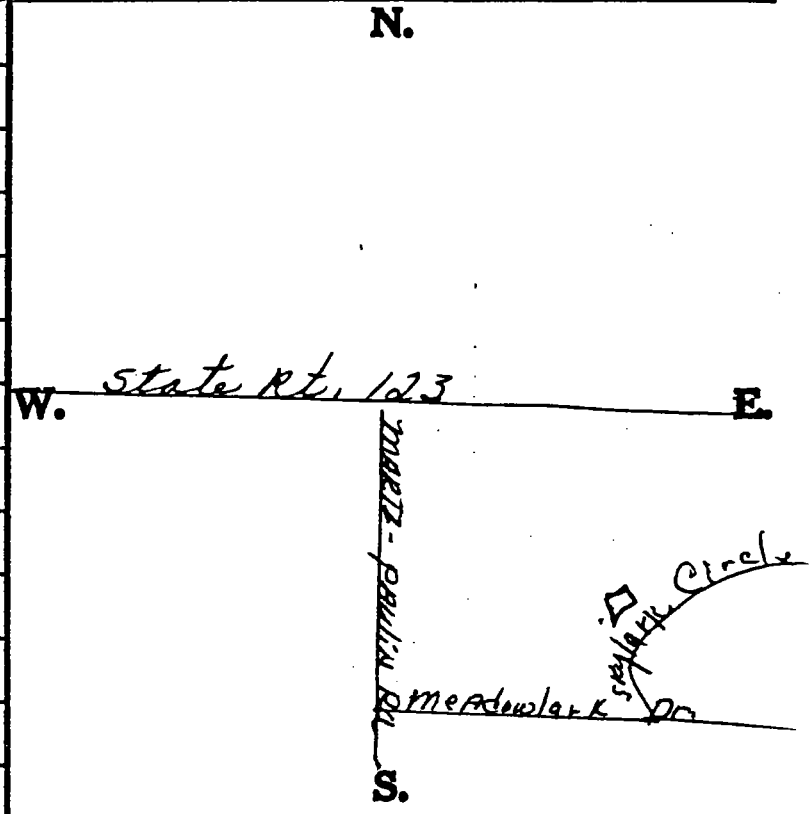
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Red Clay	0 Feet	3 Ft.
Brown Clay	3	23
Sand + Gravel	23	32
Gravel	32	48
Water at 35'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Denny Fraley

Address R.R. 1 Germantown, O

Date 11-3-70

Signed Denny Fraley

545

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

491524

COUNTY Warren TOWNSHIP Franklin SECTION OF TOWNSHIP OR LOT NUMBER Lot # 130

OWNER Yeary & Hicks ADDRESS 8272 Mentz-Pauline Rd. Franklin O

LOCATION OF PROPERTY 3½ mi. South State Rte 123 on Robt. Rd.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 45'

Type of screen 4 inch Length of screen 8'

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 18 gpm Duration of test hrs

Drawdown 10 ft Date 12/2/75

Static level (depth to water) 20 ft

Quality (clear, cloudy, taste, odor) Clear

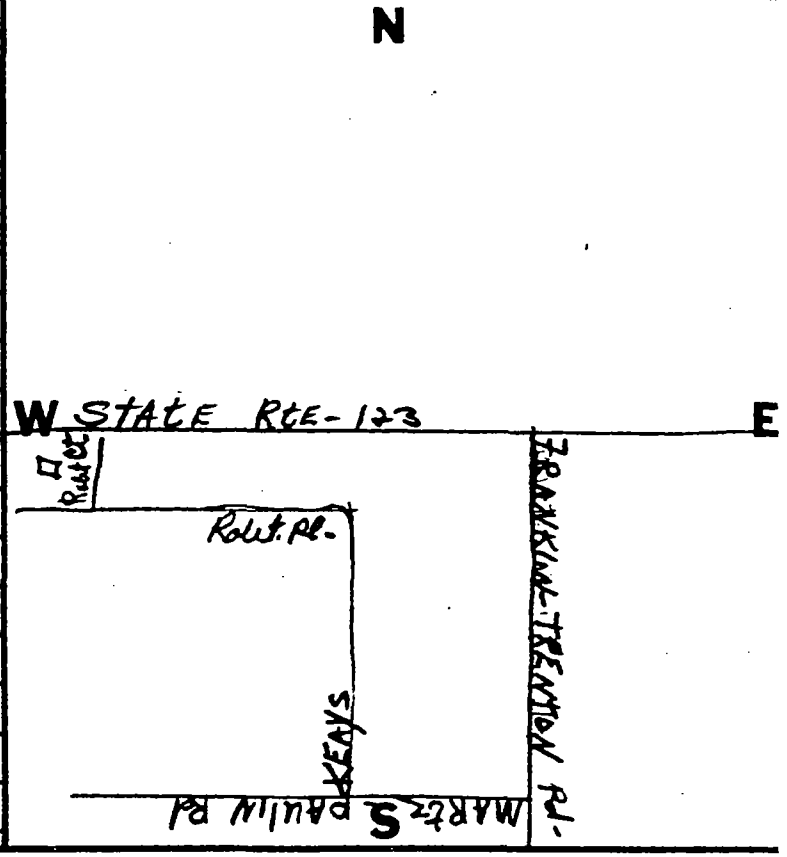
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay	0 ft	15 ft
Sand & gravel	15	30
Gravel	30	4
Water at 30'		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Wallace L. Day DATE 12/2/75

ADDRESS 7023 Hubert ave. Franklin, Ohio 45005 SIGNED W. L. Day

535

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 291688

County Warren Township Franklin Section of Township 5

Owner [illegible] Address Mill Ohio

Location of property Meadowdale Estates Carlisle Ohio

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 39

Type of screen Perf Length of screen 6'

Type of pump [illegible]

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 10 G.P.M. Duration of test 1 hrs.

Drawdown 15 ft. Date 4/18/63

Static level-depth to water 12 ft.

Quality (clear, cloudy, taste, odor) Clear

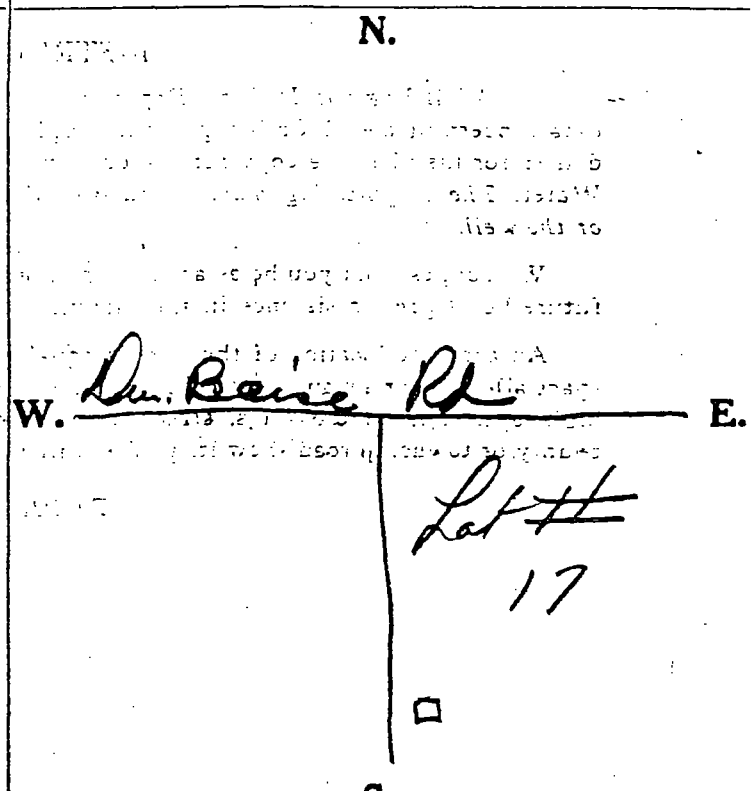
Pump installed by

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
Loam	0 Feet	4 Ft.
Gravel	4	39

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Kinser Drilling Co Date 5/10/63

Address 3110 Yankee Rd Mill Ohio Signed C E Kinser

(280)

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No. 291697

County Warren Township Franklin Section of Township 5

Owner [illegible] Address Midd Ohio

Location of property Meadowdale Estates Carlisle Ohio

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 28'

Type of screen Perf Length of screen 6'

Type of pump [illegible]

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 10 G.P.M. Duration of test 1 hrs.

Drawdown 10 ft. Date 5/16/63

Static level-depth to water 16 ft.

Quality (clear, cloudy, taste, odor) Clear

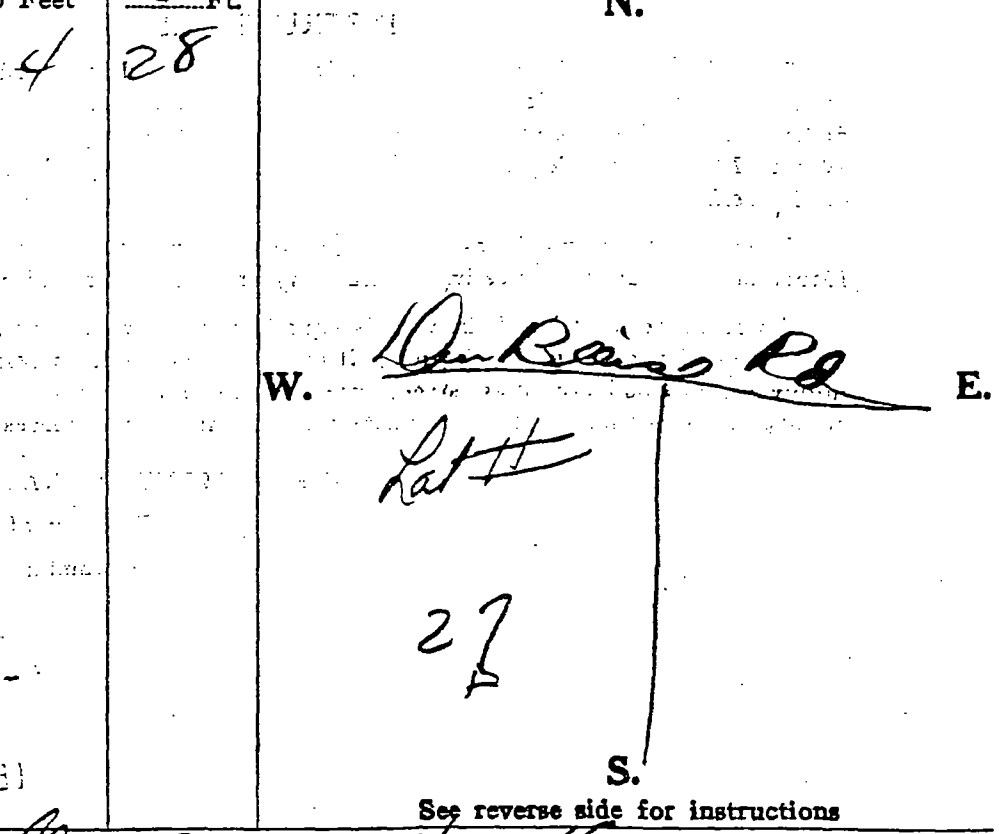
Pump installed by

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
clay	0 Feet	4 Ft.
gravel	4	28

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Linser Drilling Co Date 5/29/63

Address 310 Yankee Rd Midd Ohio Signed C E Linser

(290)

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No. 302678

County Warren Township ~~Franklin~~ Franklin Section of Township 5

Owner [illegible] Address

Location of property Lot # 44 Meadowdale Estates Twp Lebanon O

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 6'
Type of screen Perf Length of screen 10
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST

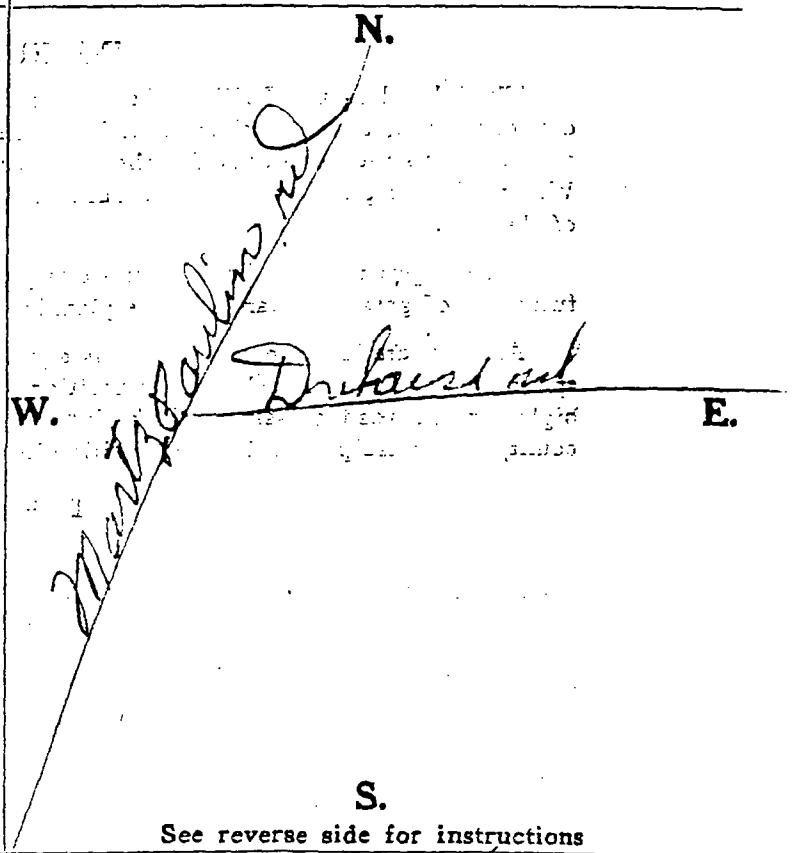
Pumping Rate 15 G.P.M. Duration of test 1 hrs.
Drawdown 15' ft. Date 4 5 64
Static level-depth to water 15' ft.
Quality (clear) cloudy, taste, odor)
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Soil	0 Feet	5 Ft.
sand + gravel	5	30'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Kinney Well Drilling Date 4 5 64
Address 8110 Yankee rd Signed [illegible]

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No. 302685

County Warren Township Franklin Section of Township 5

Owner [illegible] Address Middletown O

Location of property Lot 58 Meadowdale Estates Carlisle O

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 35'

Type of screen Slot Length of screen 6

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 15 G.P.M. Duration of test 1 hrs.

Drawdown 18 ft. Date 4/13/64

Static level-depth to water 15 ft.

Quality (clear, cloudy, taste, odor)

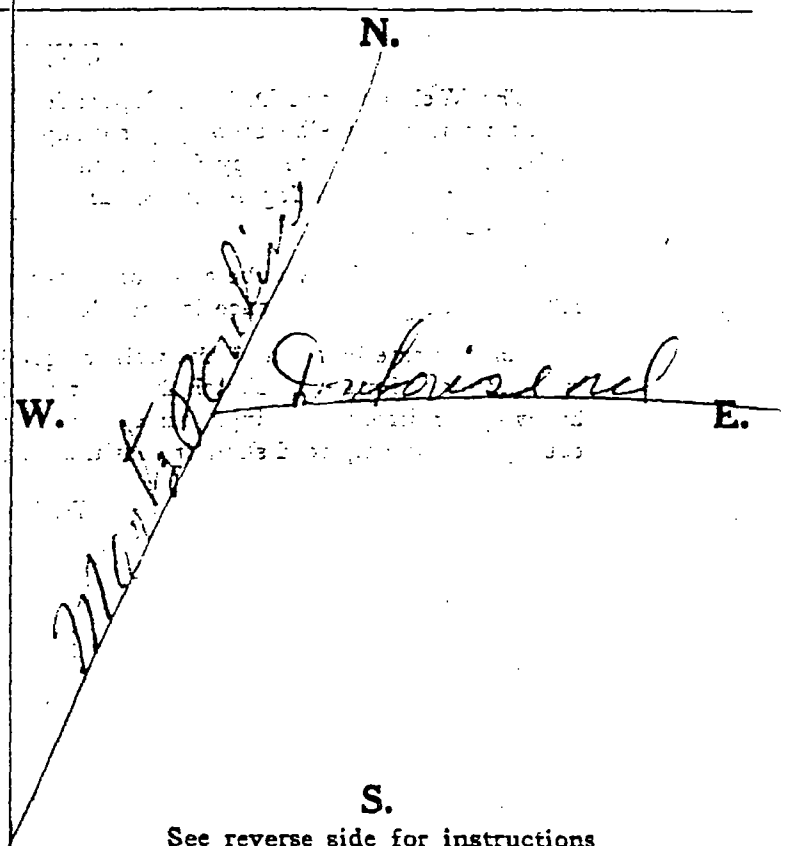
Pump installed by

WELL LOG

Formations -Sandstone, shale, limestone, gravel and clay	From	To
Loam	0 Feet	5 Ft.
sand + gravel	5	35

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Kinser Well Drilling Date 4/13/64

Address 3110 Yankee rd Signed [illegible]

(40)

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 297640

County Warren Township Franklin Section of Township 5

Owner — Address Middletown O

Location of property Meadow dale Estates Lebanon O

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 35

Type of screen Belt Length of screen 6'

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 14 G.P.M. Duration of test 1 hrs.

Drawdown 10 ft. Date 8 31 43

Static level-depth to water 15' ft.

Quality (clear, cloudy, taste, odor) Clear

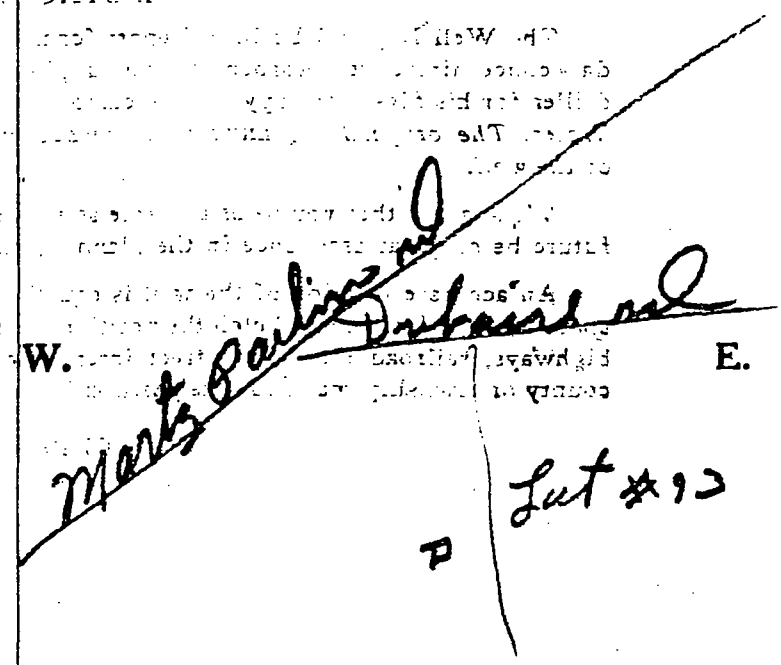
Pump installed by

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
Loam	0 Feet	4 Ft.
Gravel	4	35

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Kinser & Sons Date 4 31 43

Address 3110 Yankee Rd Signed Ed Kinser

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

512210

COUNTY Warren TOWNSHIP Franklin SECTION OF TOWNSHIP Lot #16

OWNER _____ ADDRESS _____

LOCATION OF PROPERTY 1 3/4 mi South State Rte 123 Meadowlark dr. (Kimberbrier Acres)

CONSTRUCTION DETAILS

ing diameter 6" Length of casing 42'

e of screen 1/4 in Length of screen 10'

e of pump _____

acity of pump _____

th of pump setting _____

e of completion _____

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 15 gpm Duration of test 2 hrs

Drawdown _____ ft Date May 3, 1977

Static level (depth to water) 20 ft

Quality (clear, cloudy, taste, odor) Clear

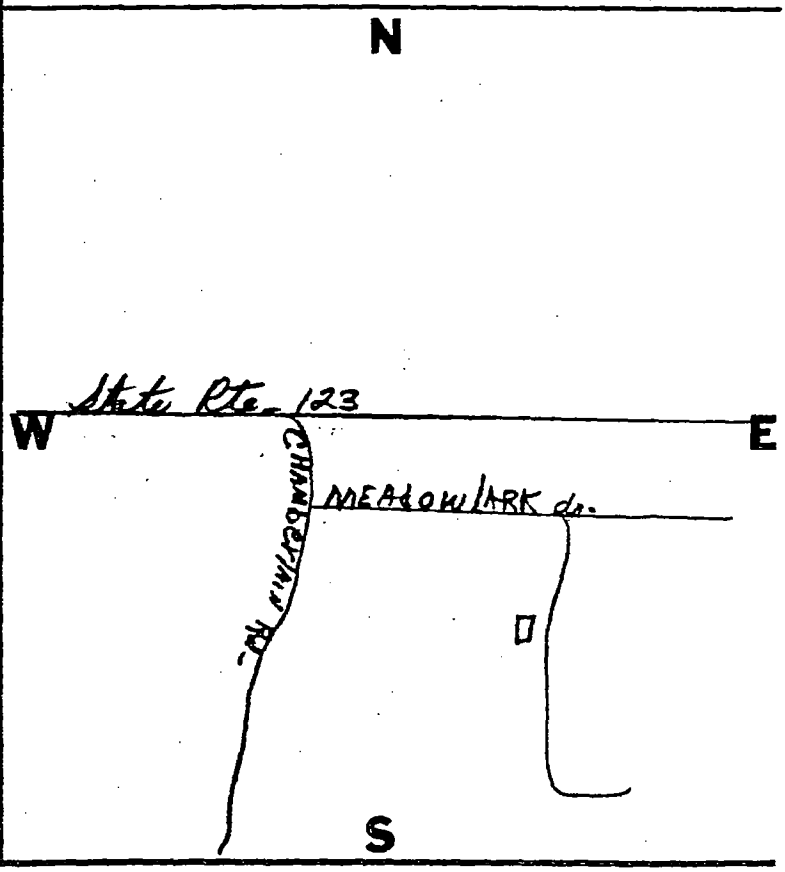
Pump installed by _____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay & gravel	0 ft	20 ft
sand & gravel	20	42'
Water at 28'		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Wallace Bay Co.

ADDRESS 7023 Hobart Ave.
Franklin, Ohio 45005

DATE 5/3/77

SIGNED W. L. Bay

(520)

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

483607

COUNTY Warren TOWNSHIP Franklin SECTION OF TOWNSHIP OR LOT NUMBER #125

OWNER x ADDRESS

LOCATION OF PROPERTY 3½ W off State Route 123 on Roberts pk.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 43'
Type of screen 1/4 in - Length of screen 8'
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

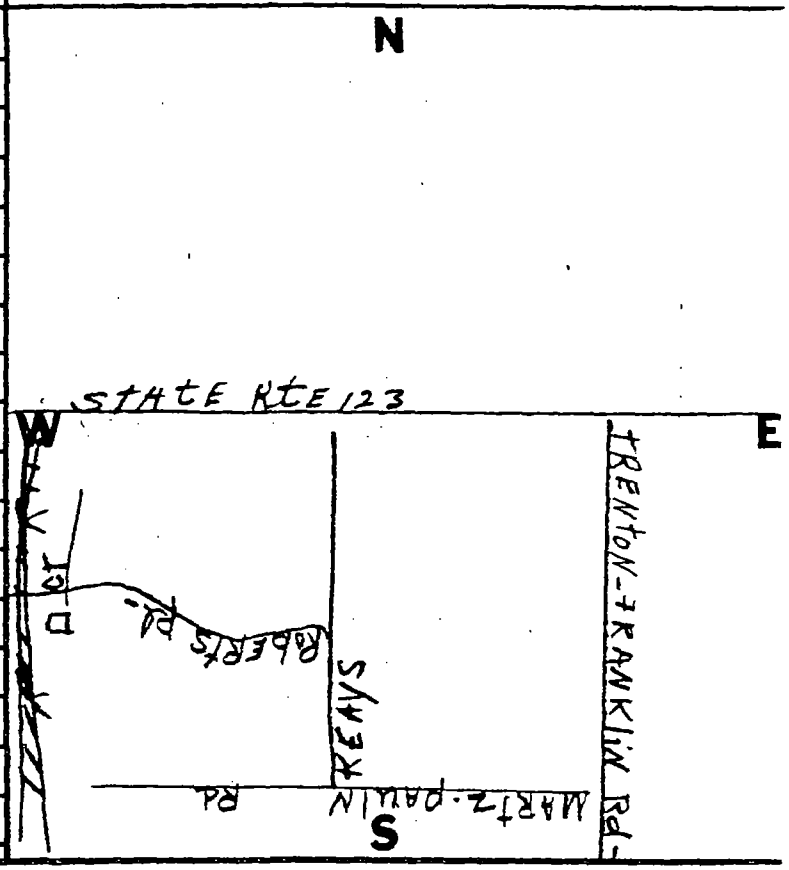
Test rate 20 gpm Duration of test 2 hrs
Drawdown ft Date 4/2/75
Static level (depth to water) 21 ft
Quality (clear, cloudy, taste, odor) Clear
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay	0 ft	8 ft
Clay & gravel	8	30
sand & gravel	30	35
gravel	35	45
Water at 23'		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Wallace L. Day
ADDRESS 1623 Hobart Ave - Franklin, Ohio 45005

DATE 4/2/75
SIGNED W. L. Day

530

*If more space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY- SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

512243

COUNTY Warren TOWNSHIP Franklin SECTION OF TOWNSHIP Lot 102 Meadowlot

OWNER _____ ADDRESS _____

LOCATION OF PROPERTY 3 mi. S. State Rte 123 - Kimberlain Acres

CONSTRUCTION DETAILS

sing diameter 6" Length of casing 43'
pe of screen 1/4 in Length of screen 10'
pe of pump _____
pacity of pump _____
pth of pump setting _____
te of completion _____

BAILING OR PUMPING TEST
(specify one by circling)

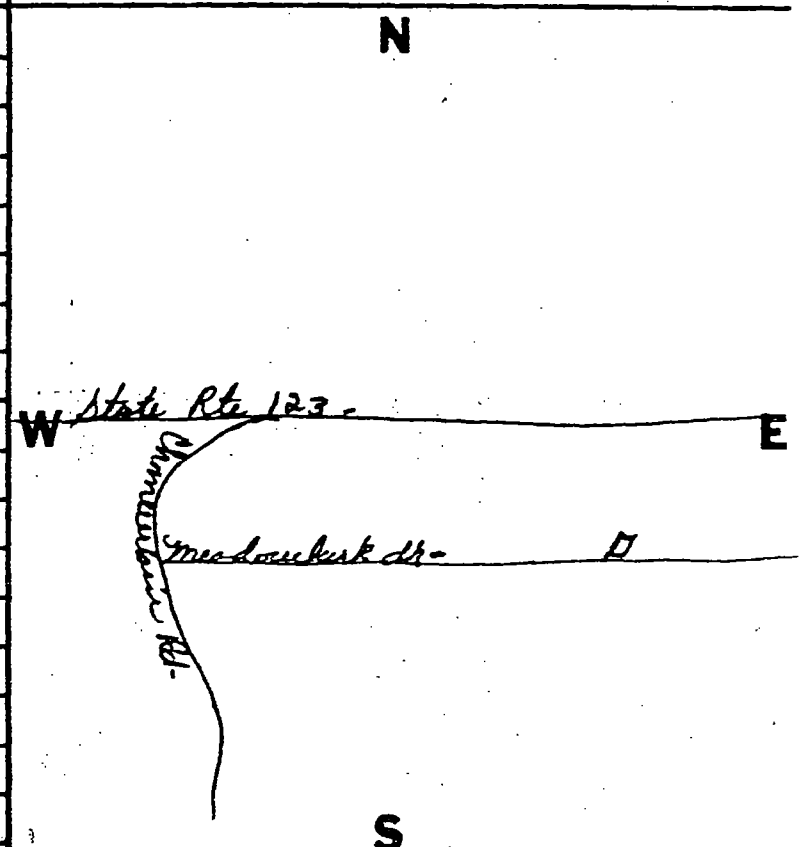
Test rate 20 gpm Duration of test 2 hrs
Drawdown 8' ft Date 7/30/77
Static level (depth to water) 24 ft
Quality (clear, cloudy, taste, odor) Clear
Pump installed by _____

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay & ~~gravel~~	0 ft	9 ft
~~Clay~~ & Gravel	9 ft.	19
Sand & gravel	19	43
Water at 30'		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Wallace L. May
ADDRESS 7023 Hubert ave.
Franklin, Ohio 45005

DATE 7/30/77
SIGNED Wallace L. May

540

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

No 322131

County Warren Township Franklin Section of Township

Owner Address Franklin, O.

Location of property 3 1/2 miles W. of Franklin on Meadowlark Sub. Lot # 42

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 38

Type of screen Wire Length of screen 6'

Type of pump

Capacity of pump

Depth of pump setting

Date of completion 4/26/65

BAILING OR PUMPING TEST

Pumping Rate 15 G.P.M. Duration of test 2 hrs.

Drawdown 3 ft. Date 4/26/65

Static level-depth to water 20 ft.

Quality (clear, cloudy, taste, odor) Clear

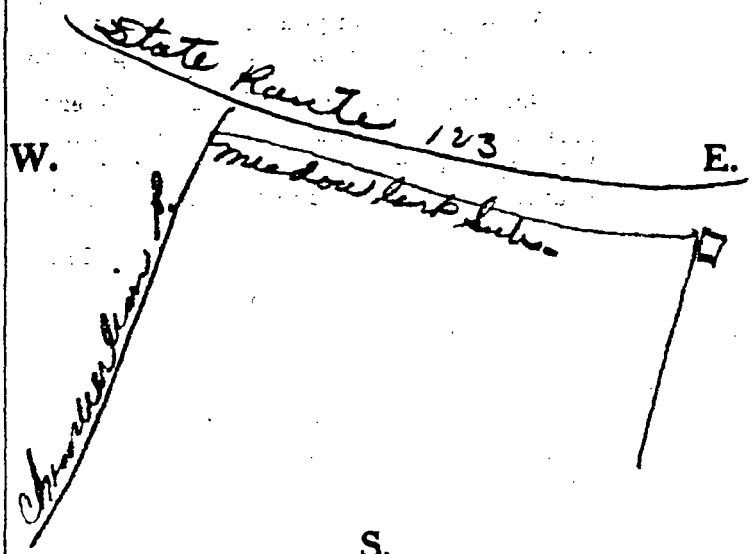
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	4 Ft.
Clay + gravel	4	28
Sand + "	28	38
water 30		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Wallace Clay

Address 765 Hamilton Ave Franklin Ohio

Signed W. L. Clay

Date 5/31/65

Signed Date

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 402935

County Warren Township Franklin Section of Township

Owner — Address —

Location of property Farmin #5 Heritage Dr. Lot # 467

CONSTRUCTION DETAILS

asing diameter 6" Length of casing 45'
ype of screen Length of screen
ype of pump
apacity of pump
epth of pump setting
ate of completion 8-19-70

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 20' G.P.M. Duration of test hrs.
Drawdown None ft. Date
Static level-depth to water 25 ft.
Quality (clear, cloudy, taste, odor)

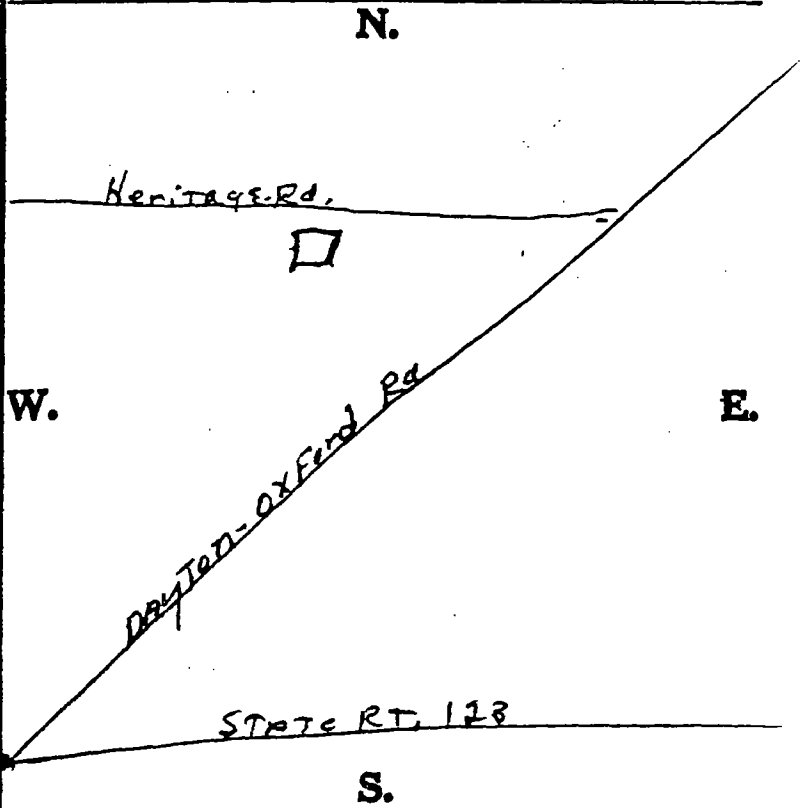
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Top Soil	0 Feet	2 Ft.
Red Clay	2	7
Sand + Gravel	7	32
Gravel	32	45
Water at 33'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Dewey Fraley Date 8-19-70

Address R.R. 1 Germantown, O Signed Dewey Fraley

If additional space is needed to complete well log, use next consecutive numbered form.

WE[illegible] LOG AND DRILLING RE[illegible]RT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 386304

County Warren Township Franklin Section of Township

Owner [illegible] Address [illegible]

Location of property Fairview #5 Kepton Dr. Lot # 481

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 45'
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion 11-1-68

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 20 G.P.M. Duration of test hrs.
Drawdown None ft. Date
Static level-depth to water 25 ft.
Quality (clear, cloudy, taste, odor)

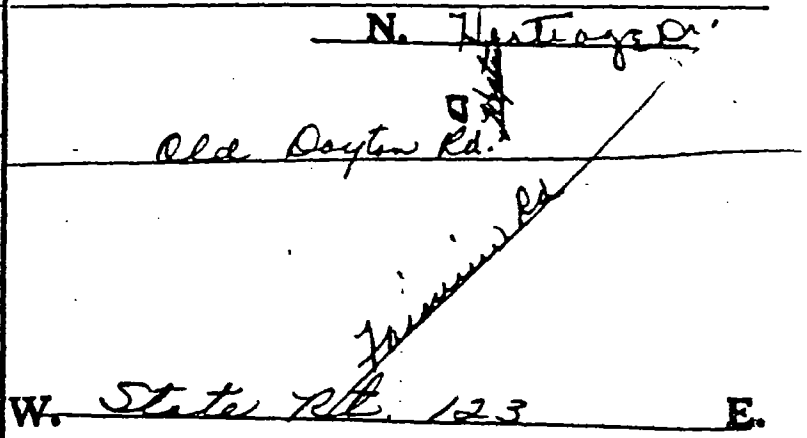
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Top Soil	0 Feet	2 Ft.
Red Clay	2	7
Sand + Gravel	7	32
Gravel	32	45
water at 33'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Dewey Fraley Date 11-1-68

Address R.R. Germantown. Signed Dewey Fraley

*If needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 322145

County Warren Township ~~Turbit~~ Franklin Section of Township

Owner [illegible] Address

Location of property 2½ miles N.W. of Franklin just off of Oxford Rd.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 44'
Type of screen 11¼" Length of screen 6'
Type of pump
Capacity of pump
Depth of pump setting
Date of completion Sept. 8, 1965

BAILING OR PUMPING TEST

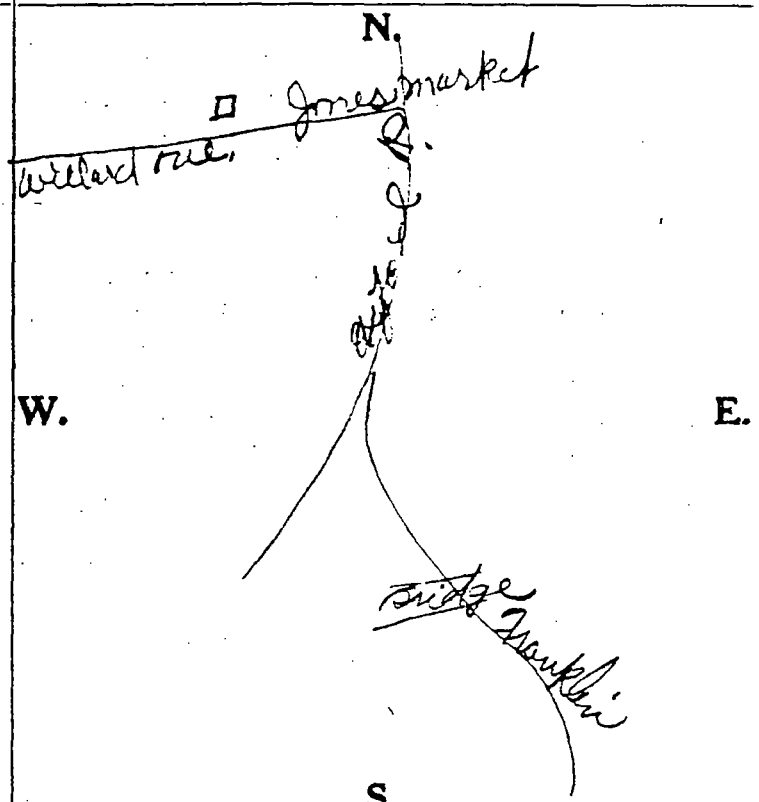
Pumping Rate 20 G.P.M. Duration of test 2 hrs.
Drawdown 4 ft. Date Aug. 16-65
Static level-depth to water 22 ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	4 Ft.
Clay & Gravel	4	29
Sand & Gravel	29	44
Water at 32		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Wallace L Day Date Sept 8, 1965
Address 7165 Hobart Ave. Signed W. L. Day

(40)

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No 172711

County Warren Township Franklin Section of Township or [illegible] 163

Owner [illegible] Address [illegible]

Location of property Fairview Plat 2 miles North west of Franklin O.

CONSTRUCTION DETAILS

Casing diameter 6" OD Length of casing 40'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

PUMPING TEST

Pumping rate 18 00 G.P.M. Duration of test 1 hrs.

Drawdown 9 ft. Date 7-17-1957

Developed capacity 18 00

Static level—depth to water 21' ft.

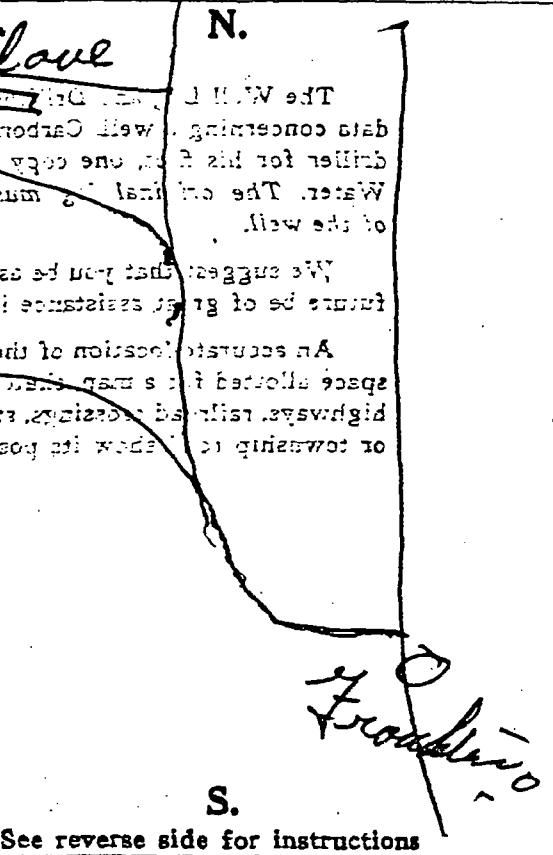
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Top Soil	0 Feet	4 Ft.
Sand & Gravel	4	40'
Water at 40'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm W. H. Bruggar

Address 6614 Roberts Drive

Date 7-17-1957

Signed William H Bruggar

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 183334

County Warren Township Franklin Section of Township Lot # 223 Carlisle Road + Janet Ave

Owner [illegible] Address [illegible]

Location of property Carlisle Road + Janet Ave. Lot #

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 44 Ft.
Type of screen Perforated Casing Length of screen 0
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST

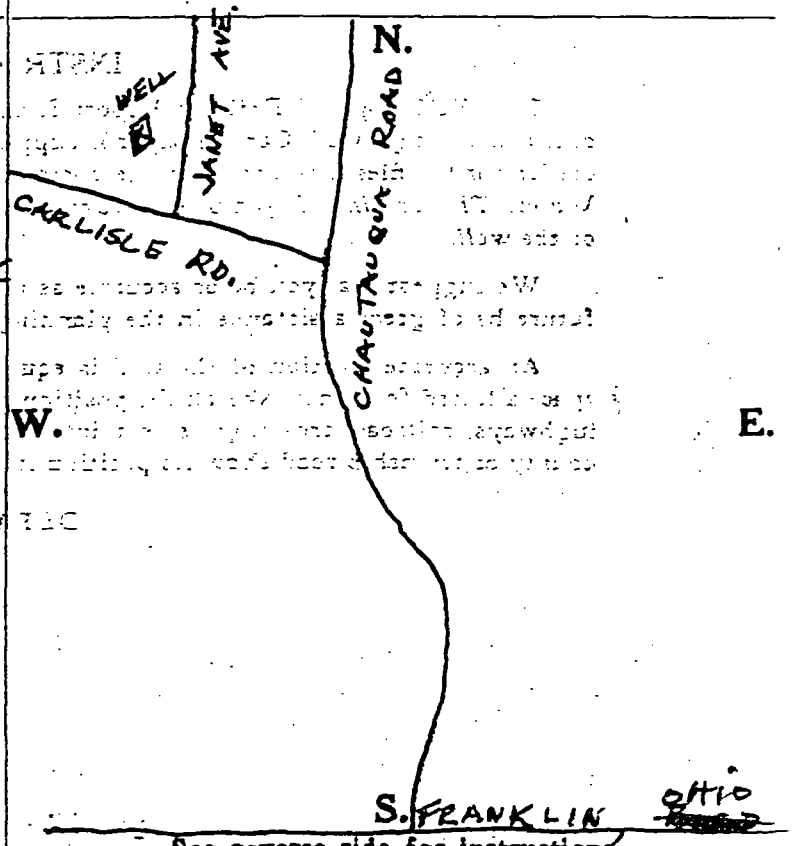
Pumping rate 20 G.P.M. Duration of test 1 hrs.
Drawdown ft. Date 7-18-56
Developed capacity 1200 G.P.H.
Static level—depth to water 20 ft.
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Topsoil	0	3
Sand + gravel	3	25
Sand + gravel with water Bearing Strata	25	44

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Elmer Miller
Address Rt. 1 Germantown Ohio

Date July 18 1956
Signed Elmer Miller

A-70

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No 137340

County WAYNE Township FRANKLIN Section of Township or Lot Number

Owner _____ Address _____

Location of property IN Norvil adition on John st third house North of Bayett Store

CONSTRUCTION DETAILS

Casing diameter 5 5/8 Length of casing 65'

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

PUMPING TEST

Pumping rate _____ G.P.M. Duration of test _____ hrs

Drawdown _____ ft. Date _____

Developed capacity _____

Static level—depth to water _____ ft

Pump installed by _____

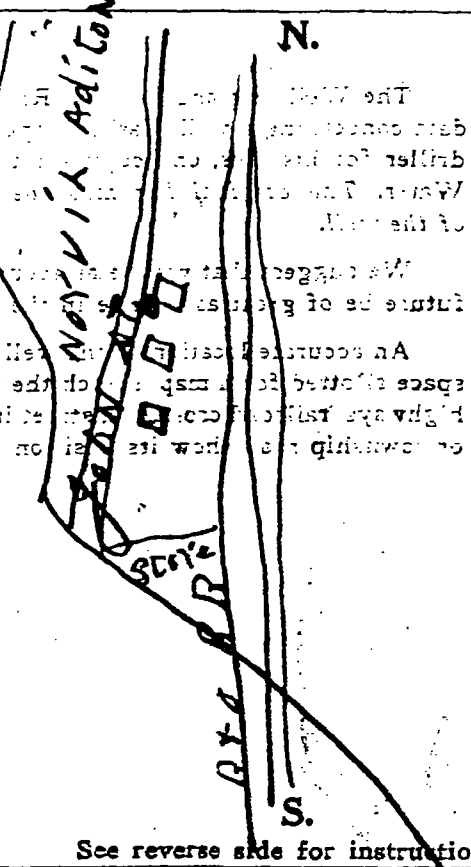
WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Gravely clay		25'
Hard pan	25	27
Grey sand clay MIX	27	33
BROWN clay	33	51
Grey sand gravel clay MIX	51	72
Red clay	72	79
Red sand gravel	79	86'

Perforated 6' IN BOTTOM Joint 9 Holes

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm A. J. Asher

Address P.O. Box 87 Carlisle O

Date 5/5/56

Signed A. J. Asher

405

X = 1,487,500 ± .000'
Y = 582,600-S

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No 111180

County WAYNE Township FRANKLIN Section of Township or Lot Number

Owner " Address

Location of property 1/4 Mile East of Carlisle School on Chaviaqua Road

CONSTRUCTION DETAILS

Casing diameter 5" Length of casing 65'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Gravely clay		32
Gravely sand clay		33
Mix	33	36
Brown Clay	36	69'8"
Gravel, Clay Mix	69'8"	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

N.

School

Chaviaqua Road

W. E.

S.

See reverse side for instructions

Drilling Firm A. J. Ashen

Address Rt. 1 Box 82 Carlisle

Date 4/14/54

Signed A. J. Ashen

WE[illegible] LOG AND DRILLING REP[illegible]RT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 322142

County Warren Township Franklin Carlisle Section of Township

Owner [illegible] Address [illegible] Franklin, Ohio

Location of property Hillcrest Dr. in Carlisle O. Lot #3

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 70

Type of screen ½ Length of screen 6'

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 15 G.P.M. Duration of test 2 hrs.

Drawdown 3 ft. Date July 1 - 1965

Static level-depth to water 50 ft.

Quality (clear, cloudy, taste, odor) Clear.

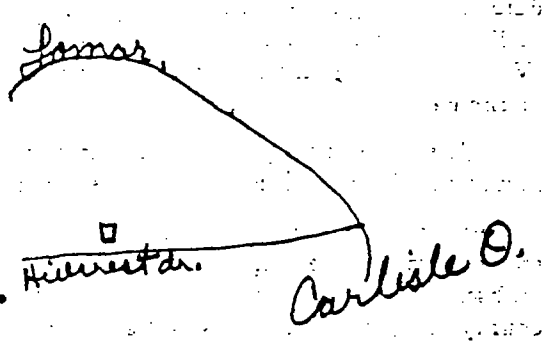
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	8 Ft.
Clay & gravel	8	38
sand & gravel	38	46
	70	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Wallace L. Day

Address 7165 Halleck Ave. Franklin, Ohio

Date July 25 - 65

Signed W. L. Day

(725)

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

619951

COUNTY WARREN TOWNSHIP FRANKLIN SECTION OF TOWNSHIP

OWNER, ADDRESS

LOCATION OF PROPERTY 712 CENTRAL AVA CARLISLE OHIO

CONSTRUCTION DETAILS

ssing diameter 5 3/8 Length of casing

pe of screen NONE Length of screen

pe of pump SUB

apacity of pump 10

epth of pump setting 50

ste of completion 9-12-83

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 13 gpm Duration of test 1 hrs

Drawdown NONE ft Date

Static level (depth to water) 34 ft

Quality (clear, cloudy, taste, odor) CLEAR

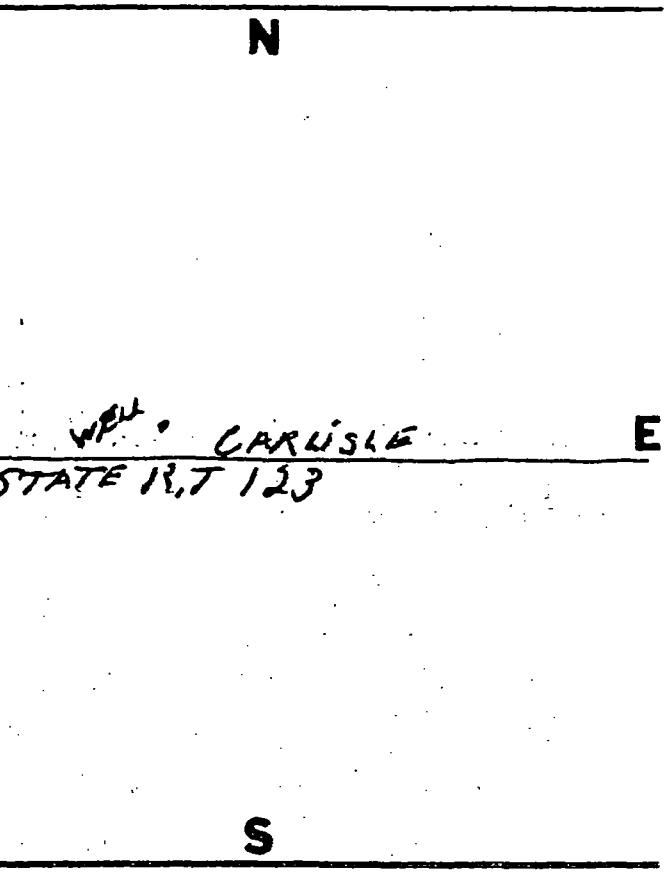
Pump installed by BARRETT WELL DRILLING

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
CLAY	0 ft	6 ft
SAND AND GRAVE	5	55

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM BARRETT WELL DRILLING DATE 9-12-83

ADDRESS 7785 LYN DRIVE SIGNED Bradley Barrett

*If additional space is needed to complete well log, use next consecutive numbered form.

ORIGINAL COPY - ODNR DIVISION OF WATER FOUNTAIN SQ COLS OHIO 43224

535

10,500 = 3,000
71,500 - 5

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No. 90284

County Warren Township Franklin Section of Township or Lot Number

Owner [illegible] Address [illegible]

Location of property ¼ mile south of 123 on Ford R.D.

CONSTRUCTION DETAILS

Casing diameter 8" Length of casing

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

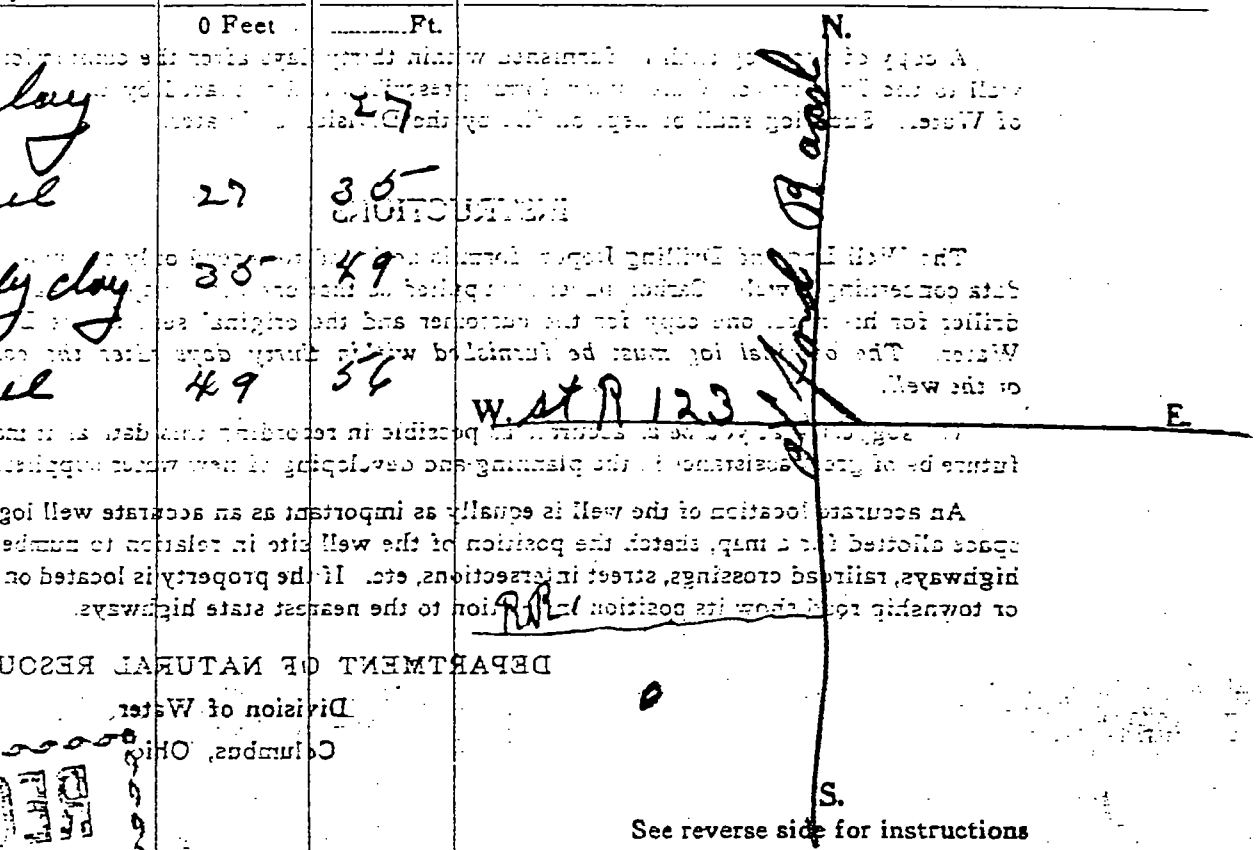
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Gravelly clay		27
and Gravel	27	30
Brown gravelly clay	30	49
and Gravel	49	56

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

Drilling Firm A. J. Asher

Address R. 1, Box 87 Carlisle

Date 7/25/52

Signed A. J. Asher

PLEASE USE PENCIL
OR TYPEWRITER
DO NOT USE INK

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 300546

County Warren Township Franklin Section of Township

Owner [illegible] Address

Location of property 405 Home ave Franklin, Ohio

CONSTRUCTION DETAILS

sing diameter 6" Length of casing 43

pe of screen [illegible] Length of screen [illegible]

pe of pump

pacity of pump

pth of pump setting

te of completion 7/8/64

BAILING OR PUMPING TEST

Pumping Rate 10 G.P.M. Duration of test 2 hrs.

Drawdown [illegible] ft. Date 7/8/64

Static level-depth to water 22 ft.

Quality (clear, cloudy, taste, odor)

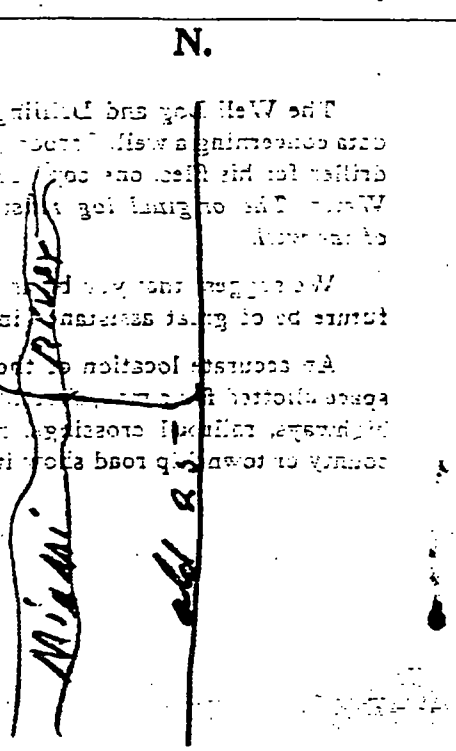
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
clay	0 Feet	5 Ft.
clay gravel	5	23
Sand	23	43
water 24 to 43		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Wallace Day

Address 2165 Hobart Ave

Date Sept 13, 1964

Signed Wallace Day

720

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No 158814

County Wayne Township Franklin Section of Township or Lot Number

Owner [illegible] Address [illegible]

Location of property South East corner of Northern Rd & Chautauqua Road

CONSTRUCTION DETAILS

Casing diameter 6 5/8 Length of casing 63'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

PUMPING TEST

Pumping rate 10 G.P.M. Duration of test 2 hrs

Drawdown None ft. Date 5/22/56

Developed capacity

Static level—depth to water 36 ft

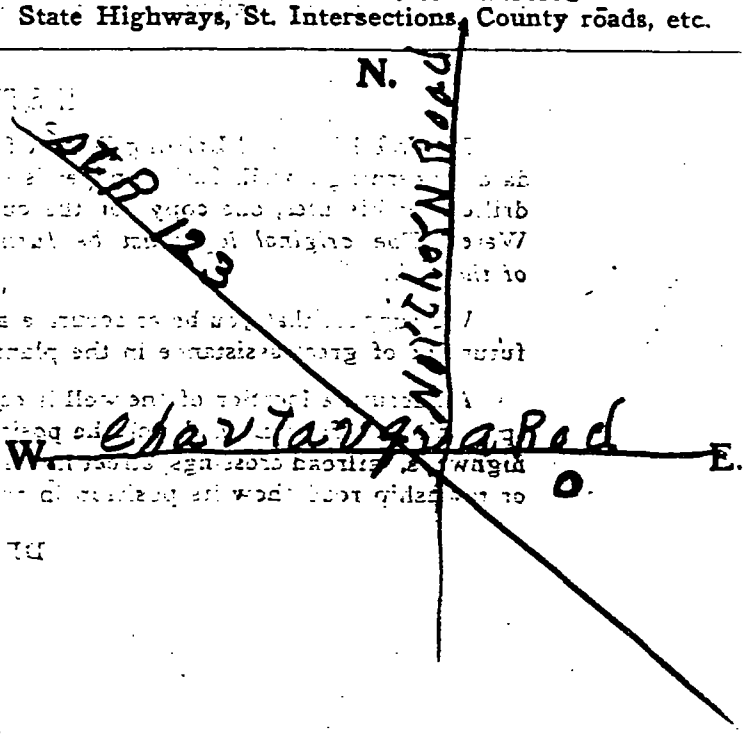
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
brown clay		41
sand	41	45
hard pan	45	54
sand gravel	54	63

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



S.

See reverse side for instructions

Drilling Firm A. F. Asher

Address R.R. #7 Carlisle O

Date 5/22/56

Signed A. F. Asher

840

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No. 282386

County Warren Township Carlisle & Franklin Section of Township

Owner [illegible] Address [illegible]

Location of property East of State Route 123 in Carlisle O. on Lomar dr.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 58

Type of screen Main Length of screen 6"

Type of pump

Capacity of pump

Depth of pump setting

Date of completion 5-23-63

BAILING OR PUMPING TEST

Pumping Rate 10 G.P.M. Duration of test 3 hrs.

Drawdown 5 ft. Date 5-23-63

Static level-depth to water 36 ft.

Quality (clear, cloudy, taste, odor) Clear

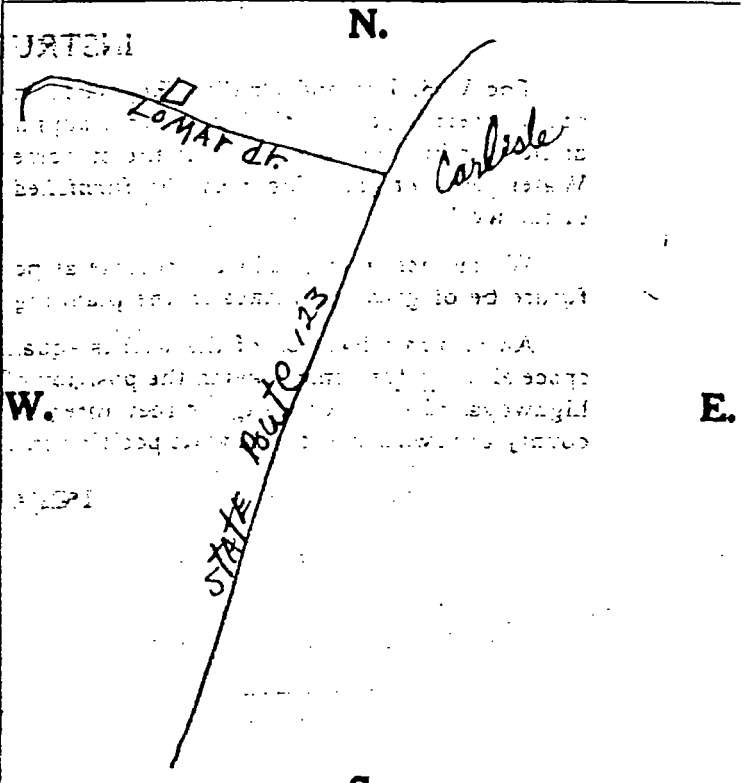
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	6 Ft.
Clay & gravel	6	38
sand & gravel	38	58
Water 39		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Wallace L. Day

Address 7165 Hobart Dr.
Franklin, Ohio

Date May 27, 1963

Signed W. L. Day

830

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

608345

COUNTY WARREN TOWNSHIP Franklin SECTION OF TOWNSHIP _____

OWNER [illegible] ADDRESS _____

LOCATION OF PROPERTY 674 W. CENTRAL CARLISLE OHIO

CONSTRUCTION DETAILS

Casing diameter 5 3/4 Length of casing _____
Type of screen NONE Length of screen _____
Type of pump SUB
Capacity of pump 8
Depth of pump setting 45
Date of completion 7-15-83

BAILING OR PUMPING TEST
(specify one by circling)

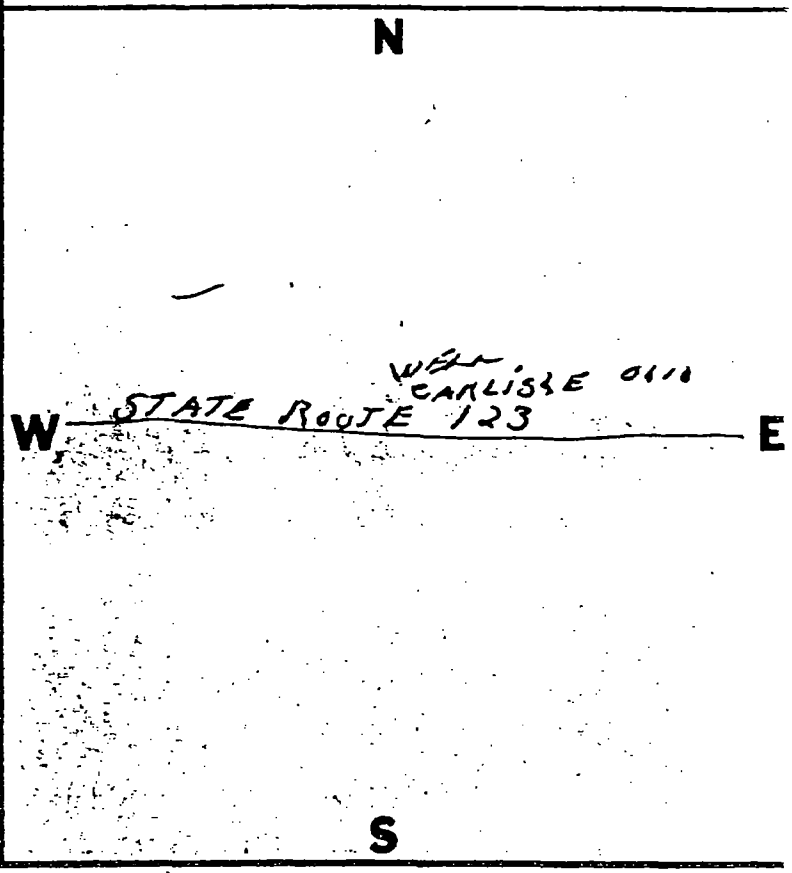
Test rate 12 gpm Duration of test 1 hrs
Drawdown NONE ft Date _____
Static level (depth to water) 32 ft
Quality (clear, cloudy, taste, odor) CLEAR
Pump installed by BARRETT WELL DRILLING

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
CLAY	0 ft	4 ft
SAND AND GRAVE	4	58
WATER AT 32		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM BARRETT WELL DRILLING DATE 7-15-83
ADDRESS 7289 LYN DRIVE SIGNED Randy Barrett

*If additional space is needed to complete well log, use next consecutive numbered form.

ORIGINAL COPY - ODNR, DIVISION OF WATER, FOUNTAIN SQ., COLS., OHIO 43224 820

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 380340

County Warren Township Franklin Section of Township

Owner [illegible] Address [illegible]

Location of property 1/4 mile west of State Route 123

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 48
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST
(Specify one by circling)

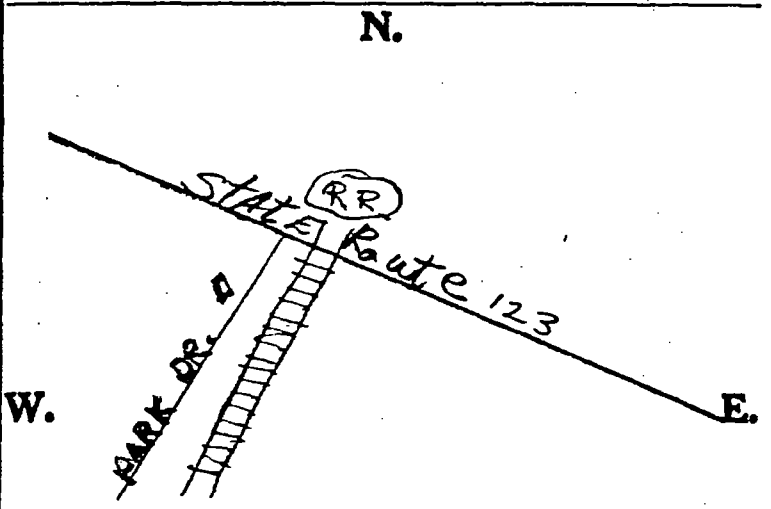
Test Rate 20 G.P.M. Duration of test 2 hrs.
Drawdown 5 ft. Date 3/23/72
Static level-depth to water 20 ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	15 Ft.
Clay + gravel	15	25
sand + gravel	25	30
Clay + gravel	30	50
Water at 25'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Wallace J. Day
Address 7165 Hobart ave - Franklin, Ohio
Date 3/24/72
Signed W. J. Day

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No 158839

County WAYNE Township FRANKLIN Section of Township or Lot Number

Owner [illegible] Address [illegible]

Location of property VanDeVer Sub East of B&O RR South of Wooster-Millersburg Rd

CONSTRUCTION DETAILS

Casing diameter 6 5/8 Length of casing 70'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

PUMPING TEST

Pumping rate 20 G.P.M. Duration of test 3 hrs.

Drawdown 2 ft. Date 4/24/57

Developed capacity 1200 G.P.H.

Static level—depth to water 28 ft.

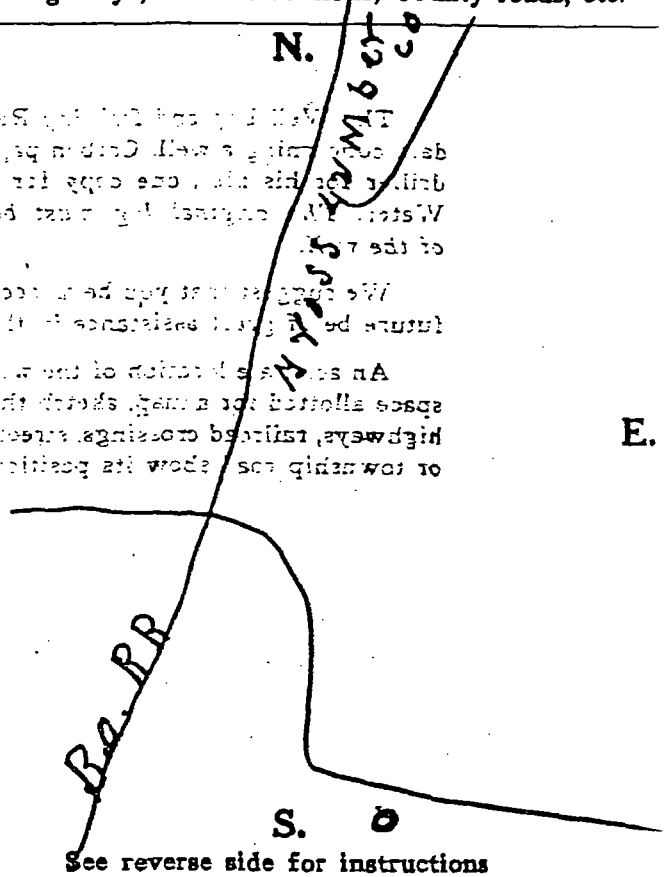
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
Grey clay		28
Grey clay sand MIX	28	30
Grey clay	30	44
Grey SAND & GRAVEL	44	70

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm W. J. Asher

Address P.O. Box 87 Carlisle O

Date 4/24/57

Signed A. J. Asher

809

ORIGINAL

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

No. 236659

County Warren Township Franklin Section of Township 27 Fairview Sub.

Owner _____ Address _____

Location of property 2½ miles Northwest of Franklin in Fairview Sub.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 39'
Type of screen _____ Length of screen _____
Type of pump _____
Capacity of pump _____
Depth of pump setting _____
Date of completion 9, 2, 59

BAILING OR PUMPING TEST

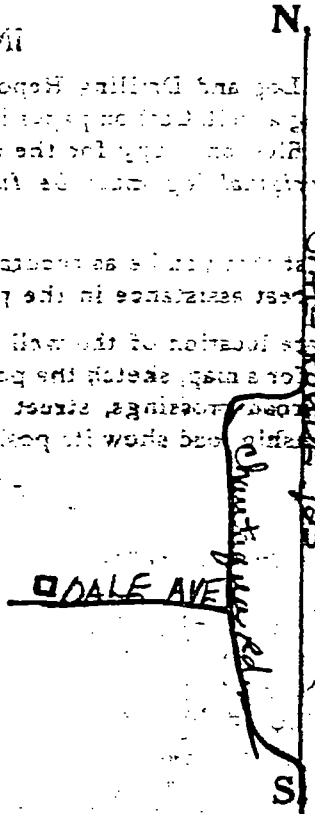
Pumping rate 20 G.P.M. Duration of test 6 hrs.
Drawdown 4 ft. Date 9, 2, 59
Developed capacity _____
Static level—depth to water 19 ft.
Pump installed by _____

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	8 Ft.
Clay & gravel	8	23
gray shale	23	56
Water at 39		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Underwood Well Drilling
Address 124 Second Street Franklin, Ohio

Date October 2, 1959
Signed W. J. Underwood

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Columbus, Ohio

No 137335

County Warren Township Franklin Section of Township or Lot Number

Owner Address

Location of property on Carlisle & Chautauqua Road

CONSTRUCTION DETAILS

Casing diameter 5 5/8 Length of casing 46'

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Developed capacity

Static level—depth to water ft.

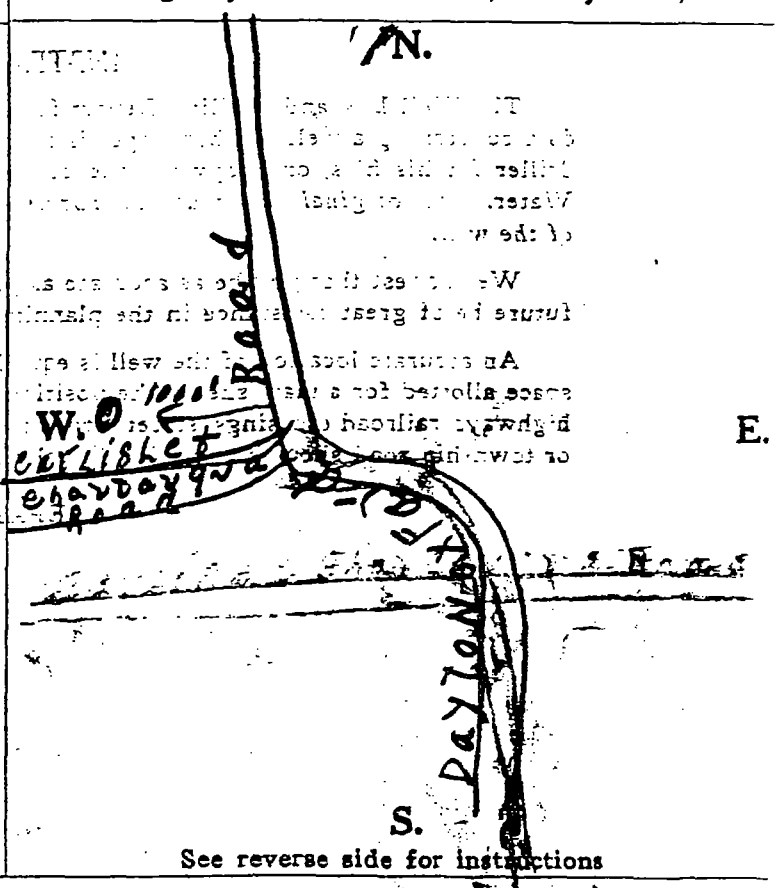
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	Ft.
gravely clay		27
and clay MIX	27	39
hard pan	39	42
and gravel	42	44

SKETCH SHOWING LOCATION

Locate in reference to numbered – State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm A.J. Asher

Address P.O. Box 87 Carlisle

Date 4/7/55

Signed A.J. Asher

745

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 415276

County Warren Township Franklin Section of Township

Owner [illegible] Address

Location of property Fairview #5 Lot # 415 Montgomery Ave.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 45'
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion 5-22-71

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 20 G.P.M. Duration of test hrs.
Drawdown None ft. Date
Static level-depth to water 25 ft.
Quality (clear, cloudy, taste, odor)

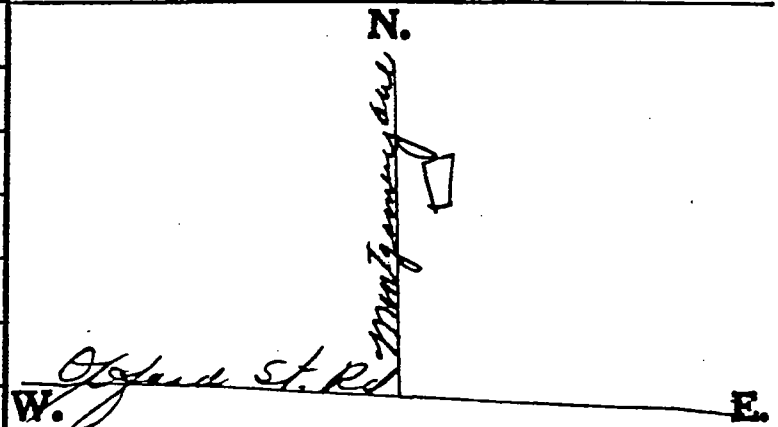
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Red Clay	0 Feet	3 Ft.
Brown Clay	3	23
Sand & Gravel	23	32
Gravel	32	45
Water at 32'		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Denny Fraley Date 5-22-71

Address R. R. 1 Germantown, O. Signed Denny Fraley

*If additional space is needed to complete well log, use next consecutive numbered form.

435

WELL LOG AND DRILLING REPORT

ORIGI

NO CARBON PAPER NECESSARY - SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Geological Survey
Fountain Square
Columbus, Ohio 43224 Phone (614) 466-5344

491541

COUNTY Warren TOWNSHIP Franklin SECTION OF TOWNSHIP OR LOT NUMBER Lt #436

OWNER — ADDRESS

LOCATION OF PROPERTY 1 mile N. State Rte 123 on Dayton-Oxford Rd-

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 42'
Type of screen 1/4 in - Length of screen 7
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

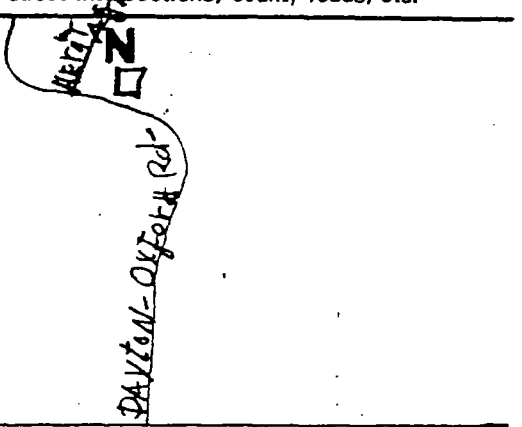
Test rate 20 gpm Duration of test 2 hrs
Drawdown 8' ft Date 3/10/76
Static level (depth to water) 20 ft
Quality (clear, cloudy, taste, odor) Clear
Pump installed by

WELL LOG*

Formations: sandstone, shale, - limestone, gravel, clay	From	To
Clay	0 ft	4 ft
Clay & gravel	4	18
Sand & gravel	18	42'
		42'
Water at 30'.		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Wallace L. Day
ADDRESS 7023 Hebert ave - Franklin, Ohio 45005

DATE 3/12/76
SIGNED W. L. Day

*If additional space is needed to complete well log, use next consecutive numbered form.

125

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 402909

County Warren Township Franklin Section of Township

Owner [illegible] Address [illegible]

Location of property Meadowlark Sub. Drake Circle Lot # 85

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 45'
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion 11-24-69

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 20 G.P.M. Duration of test hrs.
Drawdown None ft. Date
Static level-depth to water 25 ft.
Quality (clear, cloudy, taste, odor)

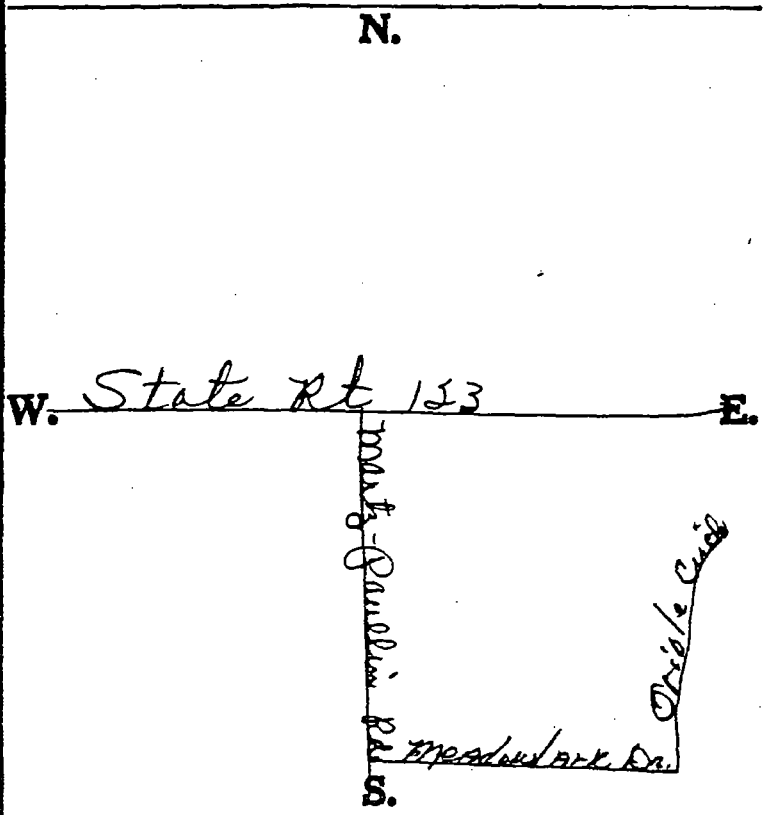
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Red Clay	0 Feet	3 Ft.
Brown Clay	3	23
Sand & Gravel	23	32
Gravel	32	46
Water at 32		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



Drilling Firm Dewey Fraley Date 11-24-69

Address R.R. 1 Germantown O. Signed Dewey Fraley

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY– SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

524757

COUNTY Warren TOWNSHIP Franklin SECTION OF TOWNSHIP 33 Lot #13

OWNER [illegible] ADDRESS [illegible]

LOCATION OF PROPERTY 1½ mi S. State Rte 123 – Kinderkamack Acres-Maple Pl.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 42'

Type of screen 14 in Length of screen 10'

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 18 gpm Duration of test 2 hrs

Drawdown 9. ft Date 8/26/77

Static level (depth to water) 25' ft

Quality (clear, cloudy, taste, odor) Clear

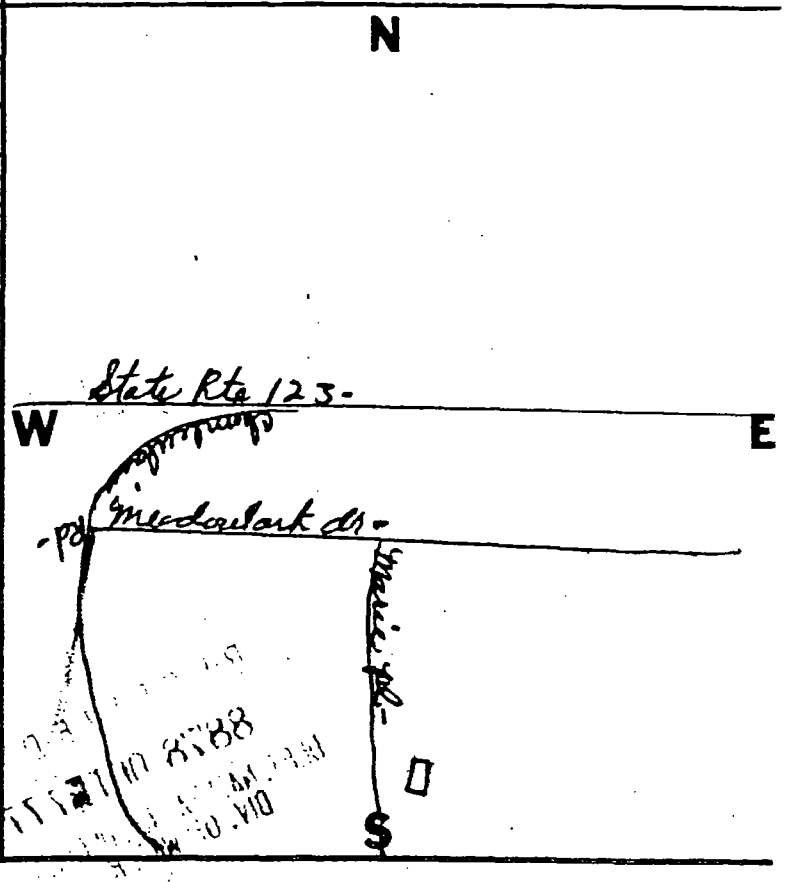
Pump installed by

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Clay & gravel	0 ft	15 ft
Sand & gravel	15	43'
Water at 30'		

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.



DRILLING FIRM Wallace & Day

ADDRESS 7023 Holtstone-Franklin O 45005

DATE Aug-30, 1977

SIGNED W. L. Day

525

*If additional space is needed to complete well log, use next consecutive numbered form.

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No. 297624

County Warren Township Franklin Section of Township 5

Owner ____ Address ____

Location of property Meadowdale Estates Carlisle Ohio

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 36
Type of screen Perf Length of screen 6'
Type of pump ____
Capacity of pump ____
Depth of pump setting ____
Date of completion ____

BAILING OR PUMPING TEST

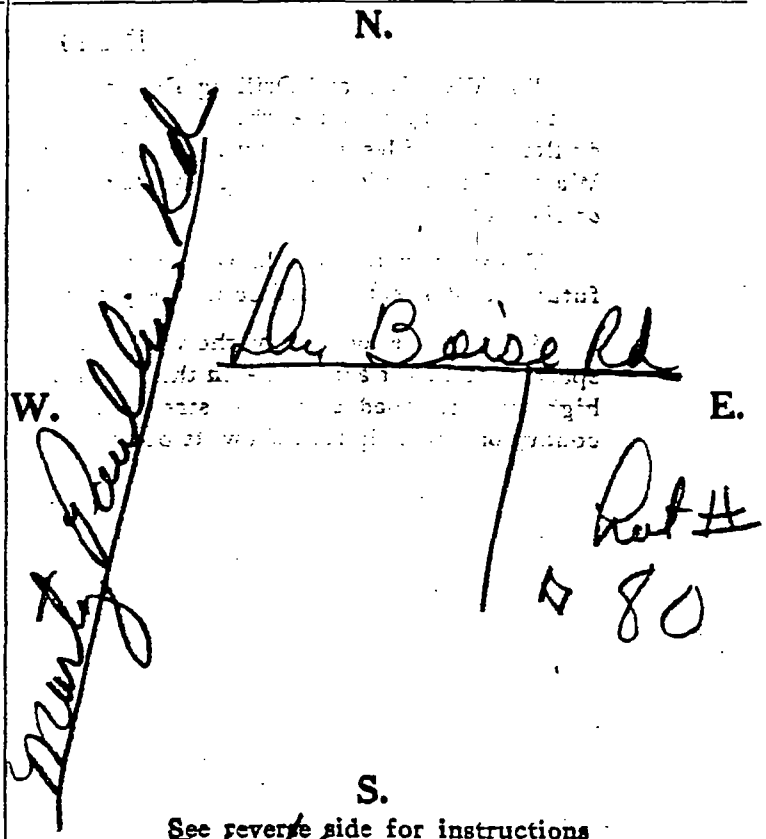
Pumping Rate 12 G.P.M. Duration of test 1 hrs.
Drawdown 10 ft. Date 9/18/63
Static level-depth to water 14 ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by ____

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	4 Ft.
Gravel	4	36

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Linser Drilling Co Date 8/9/63
Address 310 Jenkins Rd Middletown Ohio Signed C C Linser

1455

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 297629

County Warren Township Franklin Section of Township 5

Owner _____ Address _____

Location of property Meadowdale Estates Carlisle Ohio

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 34'
Type of screen Perf Length of screen 6'
Type of pump _____
Capacity of pump _____
Depth of pump setting _____
Date of completion _____

BAILING OR PUMPING TEST

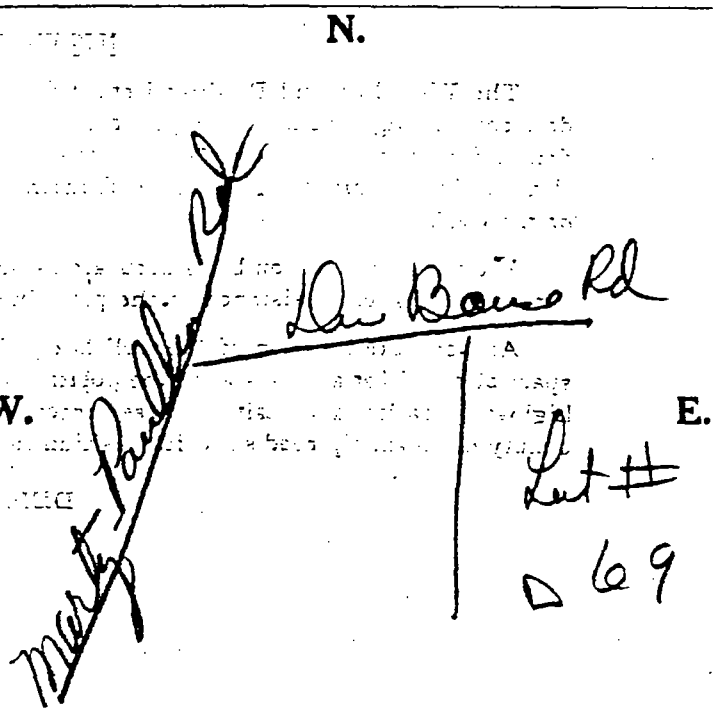
Pumping Rate 12 G.P.M. Duration of test 1 hrs.
Drawdown 12 ft. Date 6/26/63
Static level-depth to water 12 ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by _____

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	4 Ft.
gravel	4	34

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Linser Drilling Co Date 8/9/63
Address 3110 Yankee Rd Middletown Ohio Signed C E Linser

(415)

WELL LOG AND DRILLING REPORT

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 297638

County Warren Township Franklin Section of Township 5

Owner [illegible] Address [illegible]

Location of property Meadow dale Estates Carlysle O

CONSTRUCTION DETAILS

Casing diameter 16" Length of casing 37'

Type of screen Cast Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 14 G.P.M. Duration of test 1 hrs.

Drawdown 10' ft. Date 8-31-63

Static level-depth to water 15' ft.

Quality (clear, cloudy, taste, odor) Clear

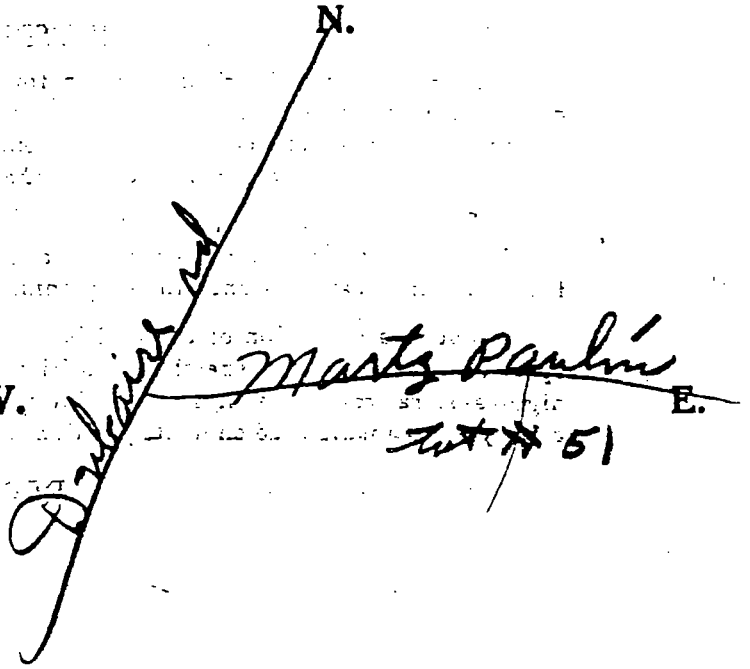
Pump installed by

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
Loam	0 Feet	4 Ft.
Gravel	4	37

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Kinser & Sons

Address 3110 Hanford rd Middletown

Date 8 31 63

Signed L E Kinser

(405)

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No. 291673

County Warren Township Franklin Section of Township 56

Owner [illegible] Address [illegible]

Location of property Meadowdale Estates Carlisle Ohio

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 33

Type of screen Perf Length of screen 6'

Type of pump [illegible]

Capacity of pump [illegible]

Depth of pump setting [illegible]

Date of completion [illegible]

BAILING OR PUMPING TEST

Pumping Rate 9 G.P.M. Duration of test 1 hrs.

Drawdown 4 ft. Date 3/10/63

Static level-depth to water 15 ft.

Quality (clear, cloudy, taste, odor) Clear

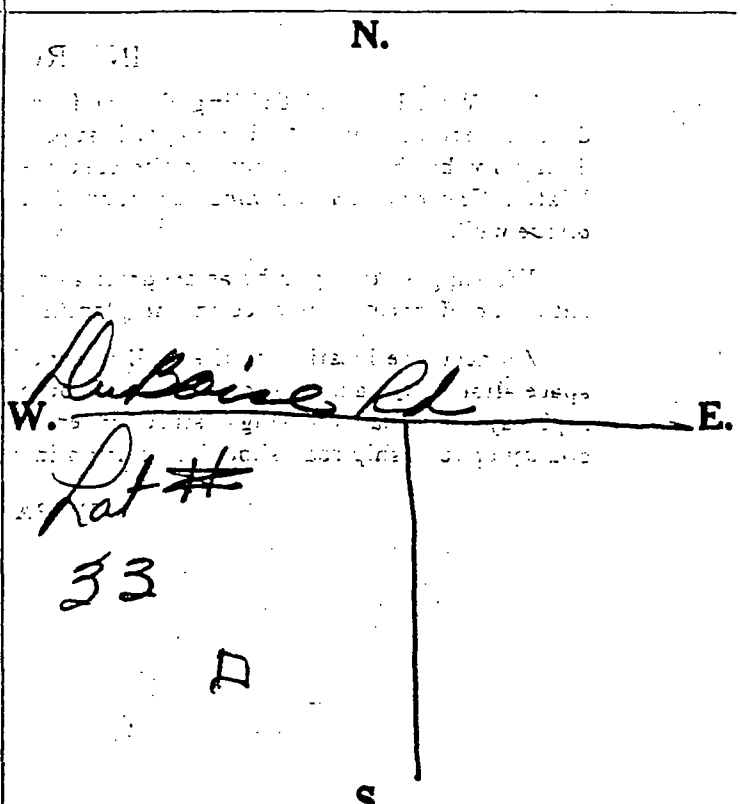
Pump installed by [illegible]

WELL LOG

Formations -Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	3 Ft.
Gravel	3	33'

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Kinser Drilling Co Date 3/28/62

Address 3110 Yeasman Rd Xenia Ohio Signed C. E. Kinser

(395)

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 291657

County Warren Co. Township Franklin Section of Township 5 E

Owner [illegible] Address

Location of property Meadowdale Estates Carlisle Ohio

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 47'

Type of screen Baf. Length of screen 6'

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate 10 G.P.M. Duration of test 1 hrs.

Drawdown 12 ft. Date 12/2/62

Static level-depth to water 15 ft.

Quality (clear, cloudy, taste, odor) Clear

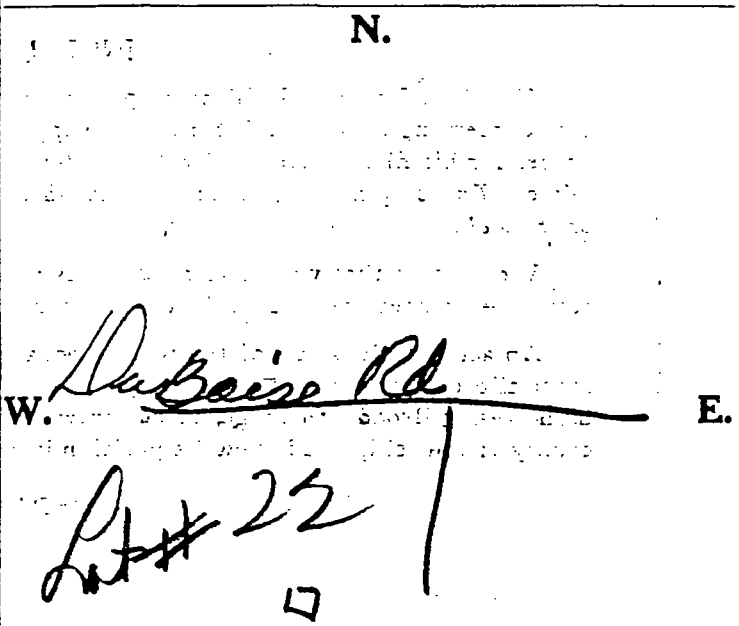
Pump installed by

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
loam	0 Feet	3 Ft.
gravel	3	47

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Linder Drilling Co. Date 1/7/63

Address 3110 Yankee Rd Middletown Ohio Signed C. E. Linder

285

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No. 285872

County Warren Township Franklin Section of Township

Owner [illegible] Address

Location of property Lot # [illegible] Meadow dale Sub.

CONSTRUCTION DETAILS

Casing diameter 6" Length of casing 35'
Type of screen Brick Length of screen 6'
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST

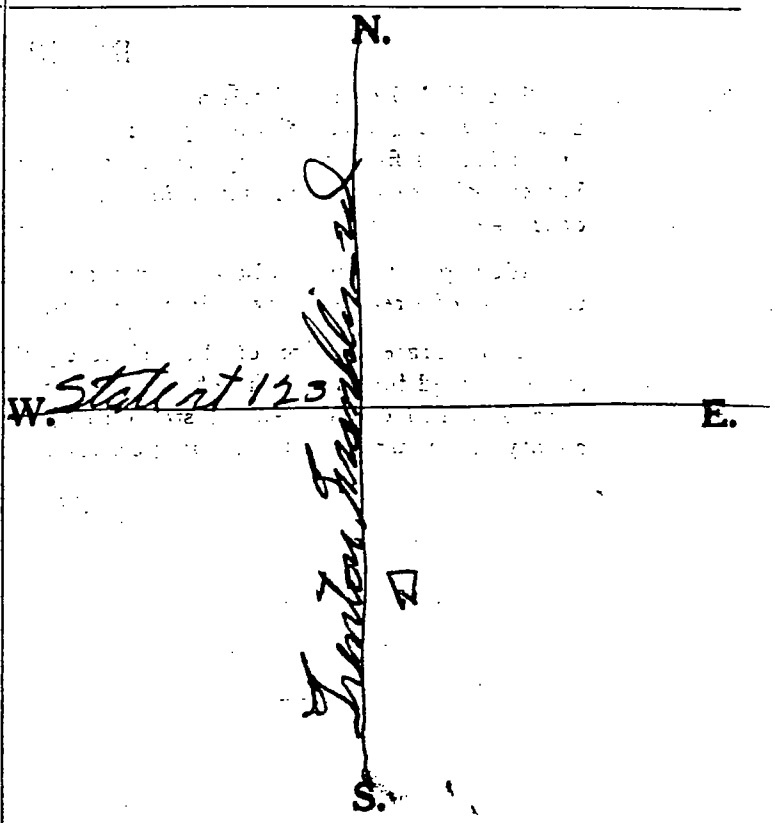
Pumping Rate 2-4 G.P.M. Duration of test 1 hrs.
Drawdown [illegible] ft. Date Oct 1962
Static level-depth to water 18' ft.
Quality (clear, cloudy, taste, odor)
Pump installed by

WELL LOG

Formations - Sandstone, shale, limestone, gravel and clay	From	To
Well	0 Feet 5	5 Ft. 35

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.



See reverse side for instructions

Drilling Firm Kinnes Well Drillers Date 11 62

Address 3116 Yankee Rd Middletown O Signed [illegible]

(375)